C4590-3

November 1984/$2.00

paper board packaging

THE INSTITUTE OF PAPER CHEMISTRY
1043 EAST SOUTH RIVER STREET
APPLETON, WISCONSIN 54912

RUGATED UTTING:

ill rotary ush atbed?

Bar Coding Corrugated
IPEX/AICC Review
TenCorr: A Team Effort

AN HBJ PUBLICATION

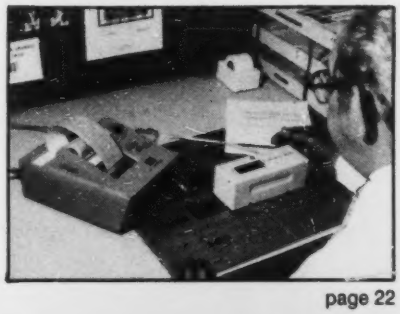
paperboard packaging

NOVEMBER 1984, VOLUME 69, No. 11.

On the Cover:

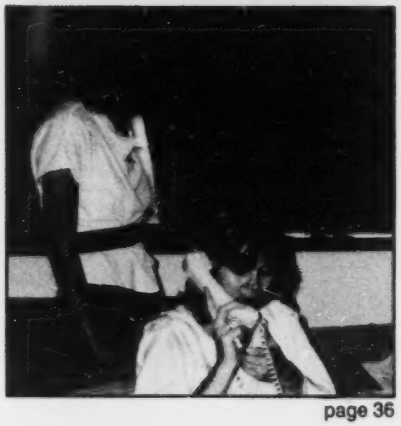
How big a piece of the pie can rotary diecutting wrest from flatbed? See feature starting on page 37. (rotary dies courtesy of Jonco Die Co., Minneapolis)

FEATURES



page 22

page 32



page 36

PRINTING AND GRAPHICS

22 **A U.S. Case History: Bar Coding Corrugated**

"The only way the case code program can provide retailers and suppliers the real-time data they need is if converters print symbols that meet the established specifications."

MEETINGS AND CONVENTIONS

32 **Speakers and Weather Sizzle at AICC Convention**

The 10th Anniversary of the Association of Independent Corrugated Converters had entertaining business sessions, a busy trade fair—and plenty of heat and sunshine.

COMPUTERS

35 **Toronto Corrugator Is Streamlined to the Max**

TenCorr Packaging sells board to a consortium of Canadian independents, victims of a labor strike who all got tired of paying the seller's-market price for U.S. board.

DIECUTTING

37 **Will Rotary Roll Over Flatbed?**

by Mark Arzoumanian

The feedback from corrugated container converters centers on degrees of accuracy needed and what diecutting method can do the job. Cost has also become a major concern.

SHOWS AND EXHIBITIONS

46 **IPEX Expands Its Scope**

by Mark Arzoumanian

A record number of 84,145 visitors took in 1246 exhibitors from 34 countries at the National Exhibition Centre in Birmingham, England.

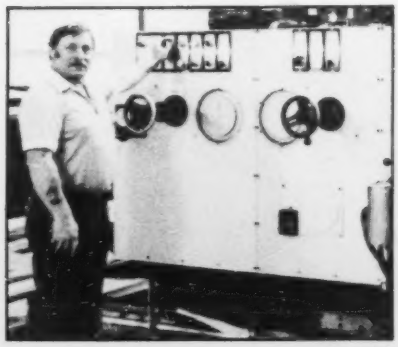
(continued on page 4)

PAPERBOARD PACKAGING (ISSN 0031-1227) is published monthly by Magazines For Industry, Inc., a subsidiary of Harcourt Brace Jovanovich Publications. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising offices: 747 Third Avenue, New York, New York 10017 and 111 East Wacker Drive, Chicago, Illinois 60601. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: $18 per year in the United States; $25 per year in Canada. All other countries: $35 per year. Single copies (pre-paid only): $2 in the U.S.; elsewhere $4.50; add $3.00 for shipping and handling per order. Second class postage paid at Duluth, Minnesota 55806. Copyright © 1984 by Magazines For Industry, Inc., a subsidiary of Harcourt Brace Jovanovich, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher. Microfilm copies of articles are available through University Microfilm, International, 300 N. Zeeb Road, Ann Arbor, Michigan 48106.

POSTMASTER: Send address changes to PAPERBOARD PACKAGING, P.O. BOX 6269, Duluth, Minnesota 55806.

For reprint information, call Mary Ellen Levey: 218-723-9373

FEATURES *continued*



page 54

DIECUTTING

54 **California Farmers Welcome New Boxmaker**

Building a converting operation around a fast new diecutter, Visalia Packaging Corp. is now gearing up a corrugator and resurrecting some well-selected used converting machinery.

OPERATIONS MANAGEMENT

56 **Small Sheet Plant Makes Big Profits**

Orange Container Inc., Santa Ana, Calif., has built a lucrative business by scoring bullseye on selection of software, an impressive diecutter, and economically priced flexos.

DEPARTMENTS

6	Comment	61	New Products
10	News	65	Literature
14	Personal View	69	New Box Products
16	Industry Statistics	72	Industry Events
58	Product of the Month	74	Classified Ads
59	People	79	Ad Index
60b	World News Briefs	80	Publisher's Report
		81	Reader Service Card

COMING

December: Industry Calendar/Package Designing

January: Industry Forum/Equipment Status

February: European Preprint/MSU School of Packaging

STAFF

Publisher ..... **Richard Perkins**
Editor ..... **Mark Arzoumanian**
Senior Editor ..... **Fred Sharring**
Associate Editor ..... **Robert Gitlin**
European Editor ..... **Robert Higham**
Consulting Editor ..... **Richard W. Porter**
Assistant Editor ..... **Shirley Harte**
Executive Editor ..... **Ben Miyares**
Production Supervisor ... **Debra M. Barmby**
Production Manager ..... **Terri Sward**
Graphics Director ..... **Jon Dallman**
Graphic Designer ..... **Robert Andresen**
Circulation Supervisor ..... **Lil Pearson**
Reader Service Manager ..... **Gail Kessler**
Promotion Director ..... **Linda Winick**

Board of Contributing Editors

Training: Loren Ashwood, Consultant
Quality Assurance: George G. Maltenfort, Consultant

Administration: Allan S. Voluck, President, United Container Company
International:
France: Maurice Pariat, Consultant
UK: John A. Moore, Consultant
Australia: John Landman, Consultant

Editorial Offices

Paperboard Packaging
7500 Old Oak Boulevard, Cleveland, OH 44130 ☐ 216-243-8100 ☐ Telex: 968918
111 E Wacker Drive, Chicago, IL 60601 ☐ 312-938-2351
747 Third Avenue, New York, N.Y. 10017 ☐ 212-418-4145 ☐ Telex: 968918

Official Board Markets
111 E. Wacker Drive, 17th floor Chicago, IL 60601 ☐ 312-938-2335

Europe
HBJ Publications, 24-28 Oval Road, London NW1 7DX ☐ Telex: 25775

Marketing Sales Offices

Eastern
Ralph D. Wheeler ☐ 747 Third Avenue, New York, N.Y. 10017 ☐ 212-418-4145 ☐ Telex: 968918

Midwest & West Coast
Richard Perkins ☐ 111 E. Wacker Drive, Chicago, IL 60601 ☐ 312-938-2351
Brian McGoldrick ☐ 111 E. Wacker Drive, Chicago, IL 60601 ☐ 312-938-2338

Europe
Dee Wakefield ☐ HBJ Publications, 24-28 Oval Road, London NW1 7DX ☐ Telex: 25775

Japan
Sumio Oka ☐ International Media Rep., Ltd., 2-29 Toranomon 1-chome, Minato-ku, Tokyo, 105 Japan, 502-0656 ☐ Telex: J22633 ☐ Cables: MEDIAREP TOKYO

Harcourt Brace Jovanovich Publications

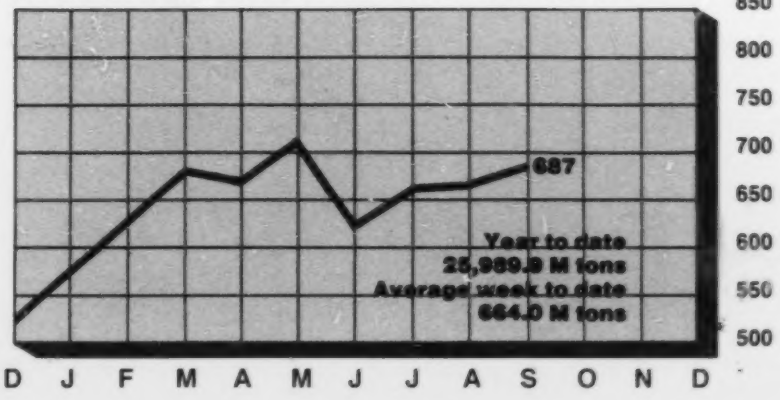
Robert L. Edgell, Chairman ☐ **Richard Moeller,** President ☐ **Lars Fladmark,** Executive Vice President ☐ **Arland Hirman,** Treasurer ☐ **Thomas Greney,** Senior Vice President ☐ **Ezra Pincus,** Senior Vice President ☐ **Joe Bilderbach,** Vice President ☐ **James Gherna,** Vice President ☐ **George Glenn,** Vice President ☐ **Harry Ramaley,** Vice President ☐ **Don Gussow,** V.P. Editorial

HBJ A HARCOURT BRACE JOVANOVICH PUBLICATION

BPA ABP

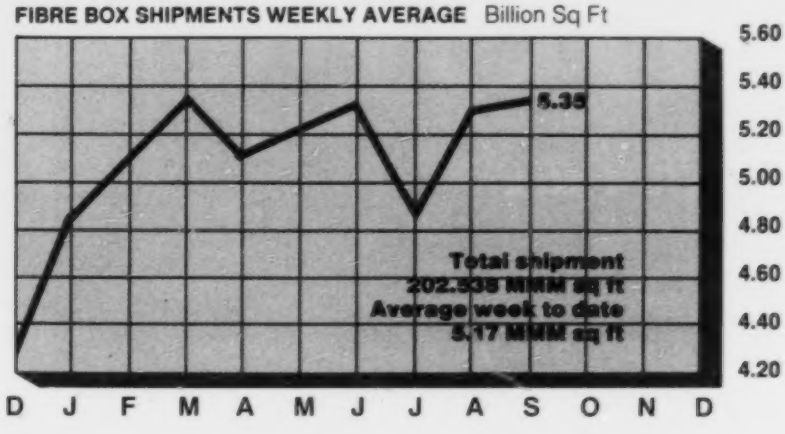
INDUSTRY STATISTICS FOR 1984

PAPERBOARD PRODUCTION WEEKLY AVERAGE 1000 Tons



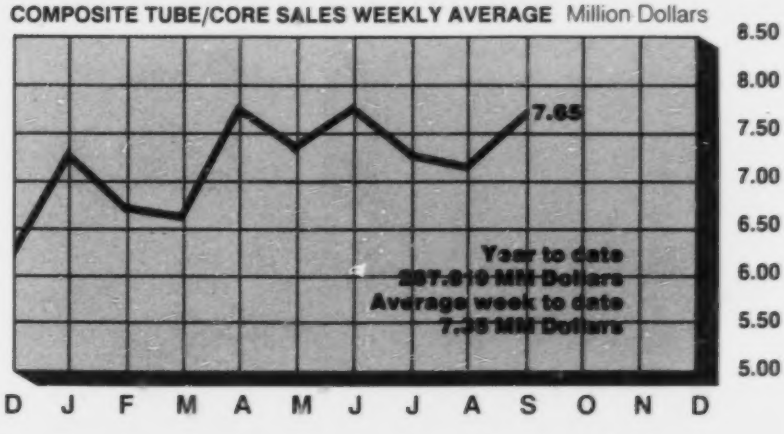
PAPERBOARD MILL OPERATIONS:
The first three quarters of 1984 concluded with average-week board output 8.4% ahead of same-period 1983 tonnage, compared with a 7.7% rise in '83 from '82, a 9.2% drop in '82 from '81, a 3.8% rise in '81 from '80, and a 1% drop in '80 from 1979—which until last year held the all-time-high yearly production record. Thus proceed the historical annual fluctuations, in the course of averaging out at the steady average expansion of approximately 3% per year. It is widely felt, however, that this continuing long-term strength may presage an increase.

FIBRE BOX SHIPMENTS WEEKLY AVERAGE Billion Sq Ft



PAPERBOARD-TYPE PRODUCTION:
In September, 2944.8 M total tons of output—up 8.4% from '83—appeared as 2218.4 M of containerboard grades—up 3.7%—according to projections from API's "production by furnish" data. This tonnage ratio of 3-to-1 compares unfavorably with the traditional 2-to-1 in what we had come to consider more-normal economic times. That seems to substantiate informal reports that improvements are less than robust in those packaging types produced from boxboard grades, but which are no longer reported by compilers.

COMPOSITE TUBE/CORE SALES WEEKLY AVERAGE Million Dollars



RIGID PAPER BOXES:
Three quarters of the way through 1984, major set-up boxmakers report only a fractional advance in total billings from 1983, compared with a strong rise of 10% in '83 from '82, an expectable decrease of 8% in recessive '82 from '81, following successive improvements of 10% in '81 from '80, of 6% in '80 over '79, and of 9% in '79 over '78. The general reduction in money available for non-essentials in recent years is clearly having an effect upon the rigid box, normally associated with much "luxury" packaging, and areas of high unemployment are much affected.

For more information on Royal Zenith, Circle No. 139 on Reader Inquiry Card →

paperboard packaging

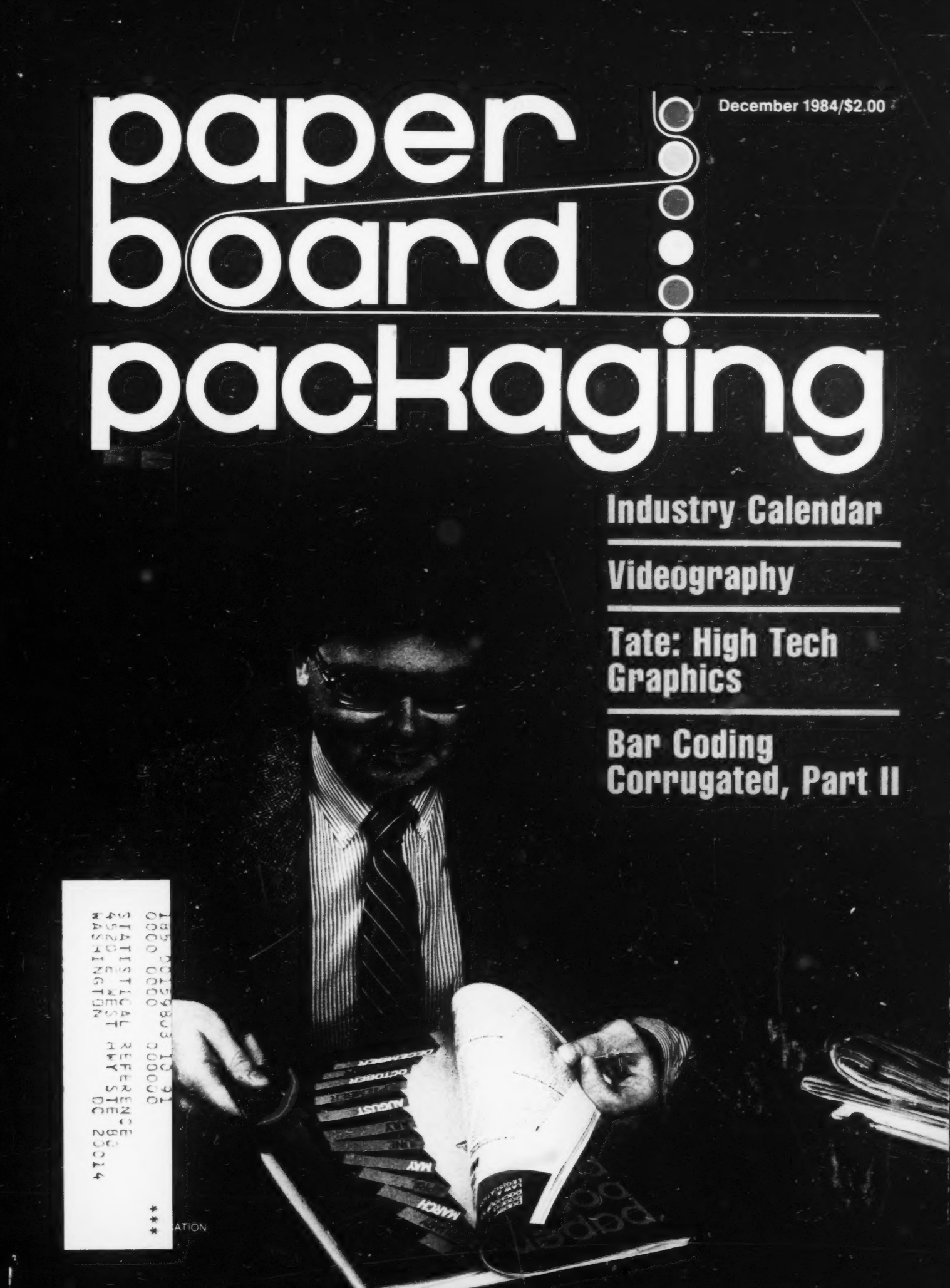
December 1984/$2.00

Industry Calendar

Videography

Tate: High Tech Graphics

Bar Coding Corrugated, Part II



paperboard packaging

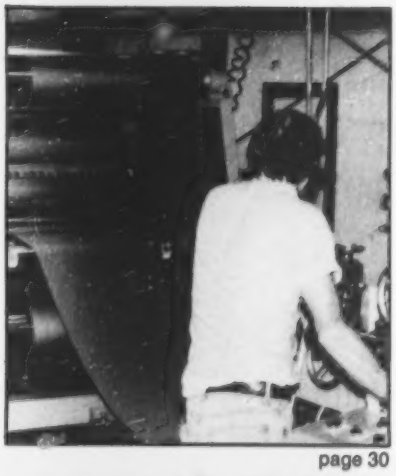
DECEMBER 1984, VOLUME 69, NO. 12

On the Cover:

Don't forget to tear out the functional and decorative 1985 Industry Calendar. Its comprehensive listing of industry events and general holidays makes it a must for any box plant.

FEATURES

page 18



page 30

page 64

PRINTING AND GRAPHICS

18 **A U.S. Case History: Bar Coding Corrugated**

People involved in bar coding say it's not very difficult to perform accurately and efficiently, it simply takes a little extra care and training.

EXCLUSIVE

26 **Industry Forum to Air Valuable Expert Dialogue**

As part of a *Paperboard Packaging* sponsored program, executives will gather regularly to analyze the challenges and changes influencing the paperboard converting industry.

PRINTING AND GRAPHICS

30 **Tate Containers Sets New Graphics Standard**

by Robert Gitlin

An Arkansas corrugated graphics plant uses folding carton manufacturing technology in a revolutionary, fresh approach to the market for highest-quality labeling and laminating.

PACKAGE DESIGN

64 **Package Design By Videography**

A Swiss-developed system of designing folding cartons in video studios is in its budding stage. Only a handful of people worldwide are able to claim expertise as of yet.

EQUIPMENT ENGINEERING

74 **Research Test Targets Stripping-Hammer Racket**

A test of retrofit components to control the noise made by stripping hammers shows that ears can be spared with the use of mufflers, shrouds, and damped chisels.

(continued on page 4)

PAPERBOARD PACKAGING (ISSN 0031-1227) is published monthly by Magazines For Industry, Inc., a subsidiary of Harcourt Brace Jovanovich Publications. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising offices: 747 Third Avenue, New York, New York 10017 and 111 East Wacker Drive, Chicago, Illinois 60601. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: $18 per year in the United States; $25 per year in Canada. All other countries: $35 per year. Single copies (pre-paid only): $2 in the U.S.; elsewhere $4.50; add $3.00 for shipping and handling per order. Second class postage paid at Duluth, Minnesota 55806. Copyright © 1984 by Magazines For Industry, Inc., a subsidiary of Harcourt Brace Jovanovich, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher. Microfilm copies of articles are available through University Microfilm, International, 300 N. Zeeb Road, Ann Arbor, Michigan 48106.

POSTMASTER: Send address changes to PAPERBOARD PACKAGING, P.O. BOX 6269 Duluth, Minnesota 55806.

For reprint information, call Mary Ellen Seglem: 218-723-9373

FEATURES *continued*

page 82

MEETINGS AND CONVENTIONS

82 **CorrExpo and Workshops Are Resounding Success**

The Corrugated Containers Conference of the Technical Association of the Pulp and Paper Industry drew a worldwide attendance to Atlanta in October, setting some major records.

ADHESIVES AND STARCHES

84 **Starch additive Prevents "MacArthur Box" Woes**

Waterproofing improvements control "I shall return" boxes at the Barrington, N.J., plant of the Shipping Container and Containerboard Division of Weyerhaeuser.

DEPARTMENTS

6	Comment	91	People
8	News	94	Industry Events
14	Personal View	95	New Box Products
16	Industry Statistics	98	Classified Ads
80b	World News Briefs	103	Ad Index
86	Product of the Month	104	Publisher's Report
88	New Products	105	Reader Inquiry Cards

COMING

January: Industry Forum/Equipment Status

February: European Preprint/MSU School of Packaging

March: Merger Trend/Flexo News/AICC/Converflex

STAFF

Publisher ..... **Richard Perkins**
Editor ..... **Mark Arzoumanian**
Senior Editor ..... **Fred Sharring**
Associate Editor ..... **Robert Gitlin**
European Editor ..... **Robert Higham**
Consulting Editor ..... **Richard W. Porter**
Assistant Editor ..... **Shirley Harte**
Executive Editor ..... **Ben Miyares**
Production Supervisor ..... **Debra J. Bertelsen**
Production Manager ..... **Terri Sward**
Graphics Director ..... **Jon Dallman**
Graphic Designer ..... **Robert Andresen**
Circulation Supervisor ..... **Lil Pearson**
Reader Service Manager ..... **Gail Kessler**
Promotion Director ..... **Linda Winick**

Board of Contributing Editors

Training: Loren Ashwood, Consultant
Quality Assurance: George G. Maltenfort, Consultant
Administration: Allan S. Voluck, President, United Container Company
International:
France: Maurice Pariat, Consultant
UK: John A. Moore, Consultant
Australia: John Landman, Consultant

Editorial Offices

Paperboard Packaging
7500 Old Oak Boulevard, Cleveland, OH 44130 ☐ 216-243-8100 ☐ Telex: 968918
111 E Wacker Drive, Chicago, IL 60601 ☐ 312-938-2351
747 Third Avenue, New York, N.Y. 10017 ☐ 212-418-4145 ☐ Telex: 968918

Official Board Markets
111 E. Wacker Drive, 17th floor Chicago, IL 60601 ☐ 312-938-2335

Europe
HBJ Publications, 24-28 Oval Road, London NW1 7DX ☐ Telex: 25775

Marketing Sales Offices

Eastern
Ralph D. Wheeler ☐ 747 Third Avenue, New York, N.Y. 10017 ☐ 212-418-4145 ☐ Telex: 968918

Midwest & West Coast
Richard Perkins ☐ 111 E. Wacker Drive, Chicago, IL 60601 ☐ 312-938-2351
Brian McGoldrick ☐ 111 E. Wacker Drive, Chicago, IL 60601 ☐ 312-938-2338

Europe
Dee Wakefield ☐ HBJ Publications, 24-28 Oval Road, London NW1 7DX ☐ Telex: 25775

Japan
Sumio Oka ☐ International Media Rep., Ltd., 2-29 Toranomon 1-chome, Minato-ku, Tokyo. 105 Japan, 502-0656 ☐ Telex: J22633 ☐ Cables: MEDIAREP TOKYO

Harcourt Brace Jovanovich Publications

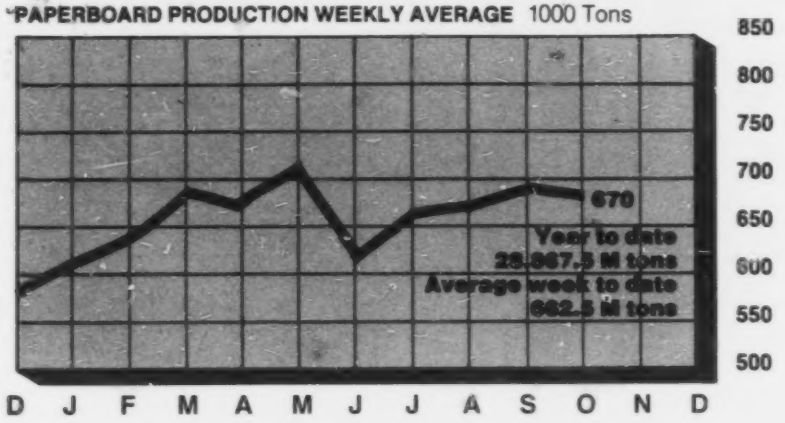
Robert L. Edgell, Chairman ☐ **Richard Moeller,** President ☐ **Lars Fladmark,** Executive Vice President ☐ **Arland Hirman,** Treasurer ☐ **Thomas Greney,** Senior Vice President ☐ **Ezra Pincus,** Senior Vice President ☐ **Joe Bilderbach,** Vice President ☐ **James Ghema,** Vice President ☐ **George Glenn,** Vice President ☐ **Harry Ramsley,** Vice President ☐ **Don Gussow,** V.P. Editorial

HBJ A HARCOURT BRACE JOVANOVICH PUBLICATION

BPA ABP

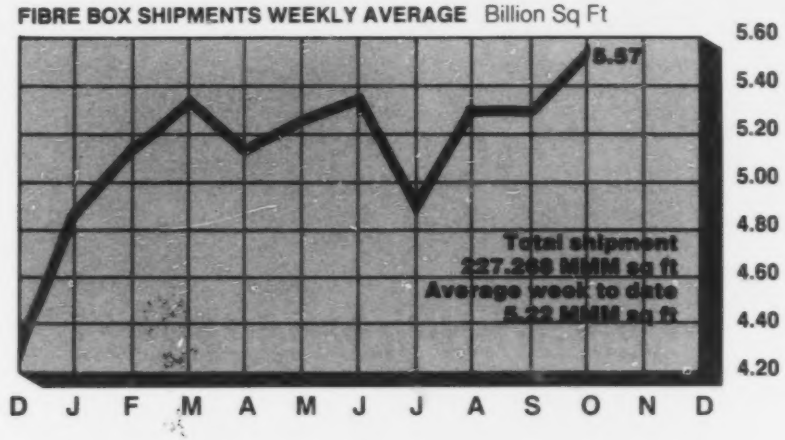
INDUSTRY
STATISTICS FOR 1984

PAPERBOARD PRODUCTION WEEKLY AVERAGE 1000 Tons



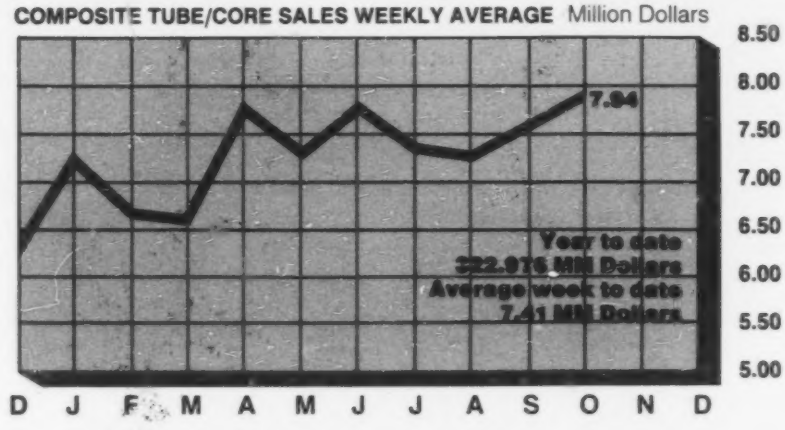
PAPERBOARD MILL OPERATIONS:
The first 10 months of 1984 ended with total average-week board volume up 8.4% from last year, which had been 8.7% above '82, which was down 9% from '81, which had been 3.4% up from 1980. Thus, this year's tonnage at October-end is at the all-time high for that point in any year, and indeed is higher than the total volume for a year as recent as 1972. However, the weekly margins over last year's output continue to narrow, as the upturn strengthened then, and both years' closing volumes may be about equal.

FIBRE BOX SHIPMENTS WEEKLY AVERAGE Billion Sq Ft



PAPERBOARD-TYPE PRODUCTION:
In October, 2965.8 M tons of board output (1.4% up from '83) comprised 2209.0 M of containerboards (1.8% up) and 756.8 M tons of boxboards (0.3% up), as projected from the API's "production by furnish" data. This recent closing-in of the two years' output margin—which in June had been 9.7%—emphasizes the strength of upsurge in late-month 1983; it does not represent a fade-out this year. Indeed, this sustained high output may denote a level of box demand that presages a good Holiday season.

COMPOSITE TUBE/CORE SALES WEEKLY AVERAGE Million Dollars



RIGID PAPER BOXES.
Setup box billings, which had encountered a distinct midyear downturn, have reversed those fortunes and now show double-digit improvements from '83 in national average, as well as a continued display of the industry's most remarkable geographical variations. Business for the year ranges month-to-month, from great upturns in some area to similarly marked slumps in others. The billings advance may be partly due to higher unit prices, like those of the folding cartons, which rise about 10-12% a year.

c4390-3

paperboard packaging

JANUARY 1985 / $2.00

Industry Forum Sounds Off!
"We're getting better performance from shipping containers."
"U.S. carton makers need precise skills to do aseptic."
"Get the most out of existing equipment."
"What customers care about is stacking strength."
"The name of the game is profit."
"Combination packaging offers a real growth opportunity."

185 00159808 10 91
0000 0000 0000 000000
STATISTICAL REFERENCE
4520 E WEST HWY STE 80
WASHINGTON DC 20014
***

paperboard packaging

January 1985, Volume 70, No. 1 ABP BPA

8 COMMENT
Persistent plastic pressures. *Mark Arzoumanian*

10 NEWS
Recycling scrap sectors' growth slows/DRUPA 86 to include biggest U.S. show ever.

14 PERSONAL VIEW
Another win for paper. *Fred Sharring*

16 INDUSTRY STATISTICS
The packaging industry in numbers, trends, charts, and individual market commentaries.

18 INDUSTRY FORUM KEYS ON MARKETS
The first meeting of the Industry Forum features a lively discussion of innovations, industry needs and competitive new materials in the corrugated and folding carton areas.

30 FLEXO PRESS CONVERSION
An efficient doctor-blade wiping system, a "brainy" electronic drive and headache-free anilox rolls make this letterpress-to-flexo conversion an exciting innovation.

34 EQUIPMENT STATUS REPORT
A survey of U.S. and Canadian box plant managers reflects a trend toward consolidation of boxmaking operations. We have fewer plants and faster machines.

46 EUROPEAN BOXBOARD REPORT
In the U.K. and all of Europe, folding carton merchants will stay competitive only through scrupulous attention to market attrition, social trends, and customer demands. *by Rowena Mills*

58 FUTURE IS FOCUS AT ITALIAN PLANT
Imballaggi Nottoli S.p.A., Lunata, Italy, grows steadily in an area rich in numerous monuments, medieval churches and cultural treasures.
by Mark Arzoumanian

64b WORLD NEWS
FEFCO seminar promises Nice time/Inmont makes licensing deal with Chinese firm.

65 STRIPPER STOPS WASTE
Size and thickness of sheet can be varied without adversely affecting operation—and at more productive runs through the diecutter—if you've got the right equipment.

66 PRODUCT OF THE MONTH
Flatbed plotter from Elcede GmbH.

67 PEOPLE
Promotion, hiring, and other human-interest news briefs.

68 PRODUCTS & EQUIPMENT
Capsule descriptions and illustrations of new offerings.

72 LITERATURE
Booklets, brochures, fliers and reprints to keep you abreast.

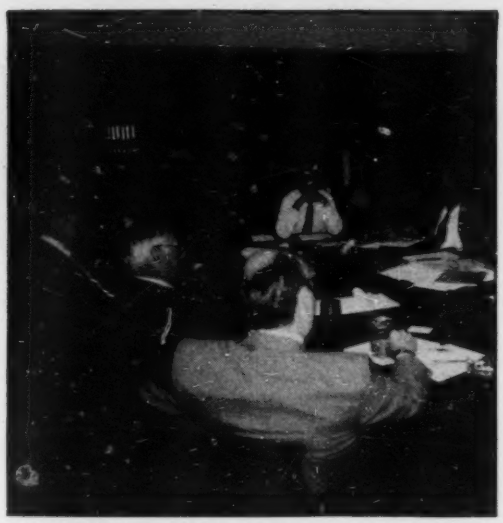
76 INDUSTRY EVENTS
What's happening: exhibitions, seminars, meetings and tours.

78 CLASSIFIED ADS
The industry's marketplace.

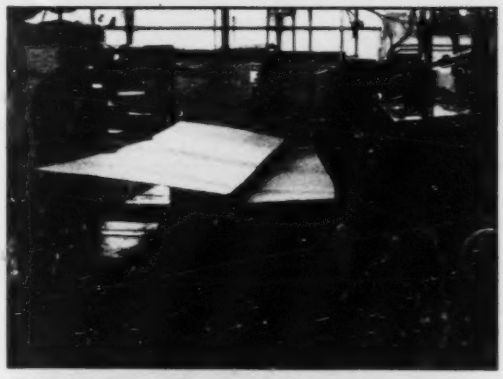
83 AD INDEX
And now a word from our sponsors.

84 PUBLISHER'S REPORT
Showcasing major promotions and news from suppliers.

85 READER INQUIRY CARDS
Expand your options by getting the facts.



18 Industry Forum in Cleveland



30 Letterpress-to-flexo conversion

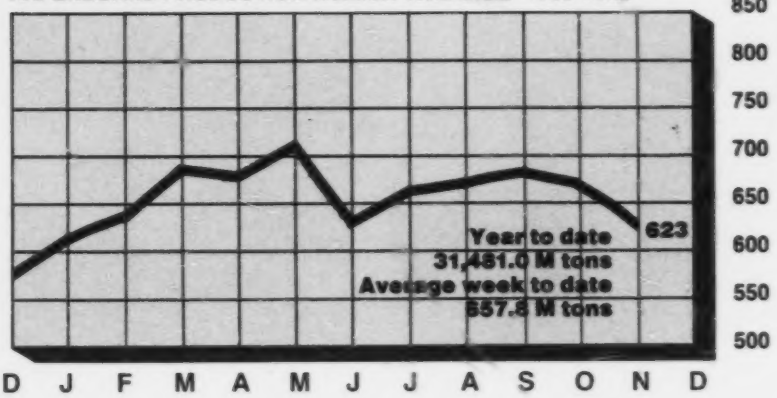
58 Martin Maxline 1840 at Nottoli S.p.A.

COMING

February: Preprint in Europe/MSU packaging school
March: Merger, acquisitions/Flexo update/Converflex/AICC
April: Boxboard report/Customer feedback/AICC Hall of Fame

INDUSTRY STATISTICS

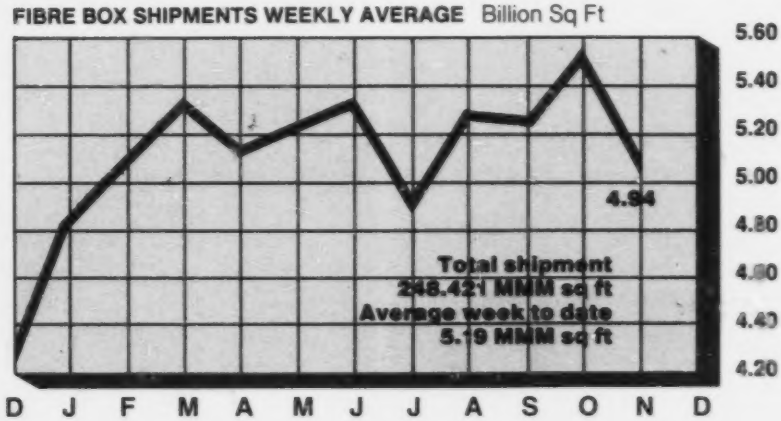
PAPERBOARD PRODUCTION WEEKLY AVERAGE 1000 Tons



Mill operations

With one month of 1984 remaining, total average-week board output was 6.2% above '83—down from a 9.6% margin at midyear—and compared with a 1983 increase of 8.9% above '82, a drop in '82 of 7.9% from '81, a rise of 3% in '81 from '80, and a drop of 1.9% in '80 from then-record year 1979. So 1984 will surely set new high annual production tonnage for the second straight year. With this tailoff in late months, however, there is room for doubt that 1985 will reach another record.

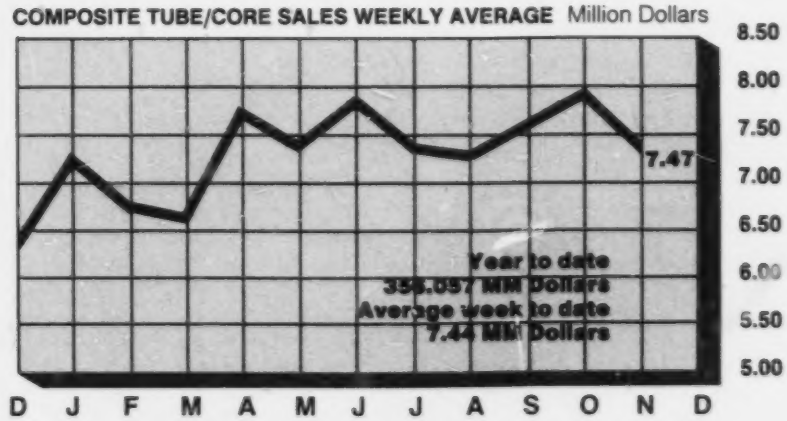
FIBRE BOX SHIPMENTS WEEKLY AVERAGE Billion Sq Ft



Board production

In November, 2001.7 M tons of containerboards (down 4.7% from '83) and 669.4 M of boxboards (down 5.6%) combined for a 4.1% overall decrease, as projected from the American Paper Institute's "production by furnish" data. One effect of this late-year easing is that the ratio of containerboard to boxboard moves closer to 3-to-1, from the long-traditional 2-to-1. Another effect is that, despite recovery from the recessive 1982 year, boxboard grades tonnage continues to reflect the competition from alternates.

COMPOSITE TUBE/CORE SALES WEEKLY AVERAGE Million Dollars

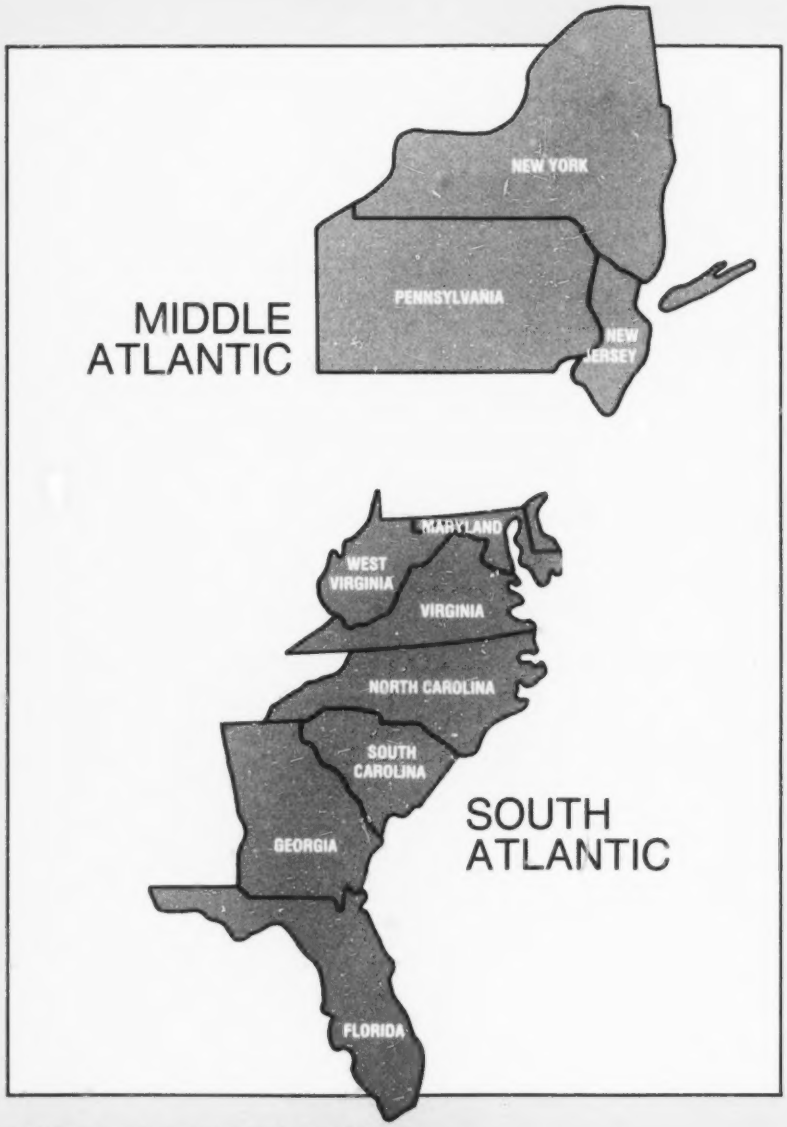


Rigid paper boxes

Through the first 11 months of '84, setup boxmakers reported a 4% rise from '83 grand total billings. But three of the National Paperbox & Packaging Association's eight regional divisions remain below '83, with improvements chiefly in industrial sectors that had furthest to go from recession. One bit of good news: average price per ton shipped reportedly has improved a bit beyond the present degree of dollar inflation.

Equipment Status Report: What's on-line?

A survey of U.S. and Canadian box plant managers reflects a trend toward consolidation of boxmaking operations. We have fewer plants and faster machines.



What has until now been known as Paperboard Packaging*'s annual Buying Forecast will from now on be known as the Equipment Status Report. It will continue to appear in the January issue.*

The name change is for several reasons. Primarily, we no longer are publishing "forecasts" of the various industries of concern to our readers: the corrugated, folding carton and rigid box industries. The annual Census report, published in June and based on a much more thorough surveying of the industry, will provide much more accurate information on estimated expenditures in the year ahead.

Insofar as the following tables reflect the existing equipment-in-use situation and not a prediction of what will be on-line in the months ahead, we felt it necessary to clear up any confusion that might have resulted from retaining the word "Forecast."

A brief comparison of U.S. data with last January's points up a trend of which any box plant official with open eyes and ears is already well aware: the rising consolidation of paperboard converting operations and the attendant reduction in number of facilities. We reported in January 1984 that there were 612 corrugating plants in the U.S.; our current figure is 610. The number of sheet plants dropped from 713 to 701. There are now 640 corrugators making board, compared with 655 last year. The number of folding carton plants fell from 562 to 525.

The statistics were compiled from a survey of box plants as listed in our Fall 1984 Official Container Directory*, which lists all plants in North America.*

In previous issues, Paperboard Packaging *published other statistics on the corrugated and folding carton industries, along with analyses of those industries and the rigid box market. Space restrictions have forced us to narrow our focus to the two major markets, but we've made an editorial commitment to expand our feature coverage of the rigid box industry in upcoming issues.*

U.S. TOTALS

Corrugated

Corrugating plants	610
Sheet plants	701
Complete corrugators	640
Separate single facers	124
Letterpress printer-slotters	2010
Flexo printer-slotters	786
Flexo folder-gluers	1147
Folder-gluers	1003
Infold gluers	92
Tapers & folder-tapers	1945
Stitchers & folder-stitchers	1441
Flatbed, platen diecutters	1613
Rotary diecutters	769
Wax impregnators	207
Curtain coaters	215
Laminators	503
Unitizers, palletizers, strappers, bundlers	3107
Computers	608

Folding Carton

Folding carton plants	525
Cutters & creasers	2309
Letterpress printers	642
Offset (litho) printing presses	747
Offset: up to 3 color	314
Offset: over 3 color	362
Offset: up to 60 inches	419
Offset: over 60 inches	127
Flexo presses	209
Gravure presses	127
Gluers	1825
Waxers	196
Waxing attachments	118
Laminators	117
Sheet cutters (guillotine)	448
Sheeters (web fed)	237
Slitter-rewinders	76
Case sealers	264
Computers	162

SOUTH ATLANTIC

Corrugated

Corrugating plants	98
Sheet plants	85
Complete corrugators	100
Separate single facers	10
Letterpress printer-slotters	266
Flexo printer-slotters	132
Flexo folder-gluers	185
Folder-gluers	147
Infold gluers	4
Tapers & folder-tapers	270
Stitchers & folder-stitchers	199
Flatbed, platen diecutters	159
Rotary diecutters	114
Wax impregnators	35
Curtain coaters	32
Laminators	53
Unitizers, palletizers, strappers, bundlers	439
Computers	86

Folding Carton

Folding carton plants	70
Cutters & creasers	294
Letterpress printers	57
Offset (litho) printing presses	81
Offset: up to 3 color	39
Offset: over 3 color	45
Offset: up to 60 inches	45
Offset: over 60 inches	6
Flexo presses	32
Gravure presses	22
Gluers	239
Waxers	37
Waxing attachments	21
Laminators	10
Sheet cutters (guillotine)	53
Sheeters (web fed)	37
Slitter-rewinders	15
Case sealers	33
Computers	25

MIDDLE ATLANTIC

Corrugated

Corrugating plants	114
Sheet plants	121
Complete corrugators	119
Separate single facers	41
Letterpress printer-slotters	386
Flexo printer-slotters	143
Flexo folder-gluers	186
Folder-gluers	292
Infold gluers	14
Tapers & folder-tapers	352
Stitchers & folder-stitchers	254
Flatbed, platen diecutters	322
Rotary diecutters	121
Wax impregnators	29
Curtain coaters	24
Laminators	101
Unitizers, palletizers, strappers, bundlers	412
Computers	91

Folding Carton

Folding carton plants	110
Cutters & creasers	521
Letterpress printers	197
Offset (litho) printing presses	170
Offset: up to 3 color	66
Offset: over 3 color	92
Offset: up to 60 inches	105
Offset: over 60 inches	24
Flexo presses	25
Gravure presses	29
Gluers	449
Waxers	31
Waxing attachments	30
Laminators	17
Sheet cutters (guillotine)	104
Sheeters (web fed)	31
Slitter-rewinders	7
Case sealers	44
Computers	39

continued on page 38

NEW ENGLAND

Corrugated

Corrugating plants 32
Sheet plants 51
Complete corrugators ... 37
Separate single facers 13
Letterpress printer-slotters 140
Flexo printer-slotters 43
Flexo folder-gluers 56
Folder-gluers 49
Infold gluers 1
Tapers & folder-tapers 147
Stitchers & folder-stitchers 112
Flatbed, platen diecutters 129
Rotary diecutters 33
Wax impregnators 9
Curtain coaters 5
Laminators 33
Unitizers, palletizers, strappers, bundlers ... 185
Computers 37

Folding Carton

Folding carton plants ... 53
Cutters & creasers 244
Letterpress printers 78
Offset (litho) printing presses 66
Offset: up to 3 color 26
Offset: over 3 color 33
Offset: up to 60 inches 41
Offset: over 60 inches ... 15
Flexo presses 10
Gravure presses 2
Gluers 160
Waxers 17
Waxing attachments 9
Laminators 16
Sheet cutters (guillotine) 42
Sheeters (web fed) 24
Slitter-rewinders 7
Case sealers 17
Computers 15

EAST NORTH CENTRAL

Corrugated

Corrugating plants 149
Sheet plants 219
Complete corrugators .. 152
Separate single facers 32
Letterpress printer-slotters 560
Flexo printer-slotters ... 181
Flexo folder-gluers 294
Folder-gluers 218
Infold gluers 28
Tapers & folder-tapers 543
Stitchers & folder-stitchers 413
Flatbed, platen diecutters 426
Rotary diecutters 196
Wax impregnators 31
Curtain coaters 40
Laminators 142
Unitizers, palletizers, strappers, bundlers ... 863
Computers 155

Folding Carton

Folding carton plants ... 133
Cutters & creasers 586
Letterpress printers 185
Offset (litho) printing presses 194
Offset: up to 3 color 80
Offset: over 3 color 92
Offset: up to 60 inches 93
Offset: over 60 inches ... 55
Flexo presses 46
Gravure presses 50
Gluers 448
Waxers 38
Waxing attachments 29
Laminators 45
Sheet cutters (guillotine) 114
Sheeters (web fed) 59
Slitter-rewinders 21
Case sealers 81
Computers 16

WEST NORTH CENTRAL

Corrugated

Corrugating plants 51
Sheet plants 52
Complete corrugators ... 51
Separate single facers 6
Letterpress printer-slotters 154
Flexo printer-slotters 73
Flexo folder-gluers 86
Folder-gluers 74
Infold gluers 20
Tapers & folder-tapers 165
Stitchers & folder-stitchers 100
Flatbed, platen diecutters 147
Rotary diecutters 83
Wax impregnators 20
Curtain coaters 33
Laminators 38
Unitizers, palletizers, strappers, bundlers ... 292
Computers 59

Folding Carton

Folding carton plants ... 40
Cutters & creasers 199
Letterpress printers 33
Offset (litho) printing presses 61
Offset: up to 3 color 31
Offset: over 3 color 29
Offset: up to 60 inches 36
Offset: over 60 inches ... 10
Flexo presses 27
Gravure presses 4
Gluers 120
Waxers 12
Waxing attachments 8
Laminators 9
Sheet cutters (guillotine) 38
Sheeters (web fed) 19
Slitter-rewinders 6
Case sealers 19
Computers 14

EAST SOUTH CENTRAL

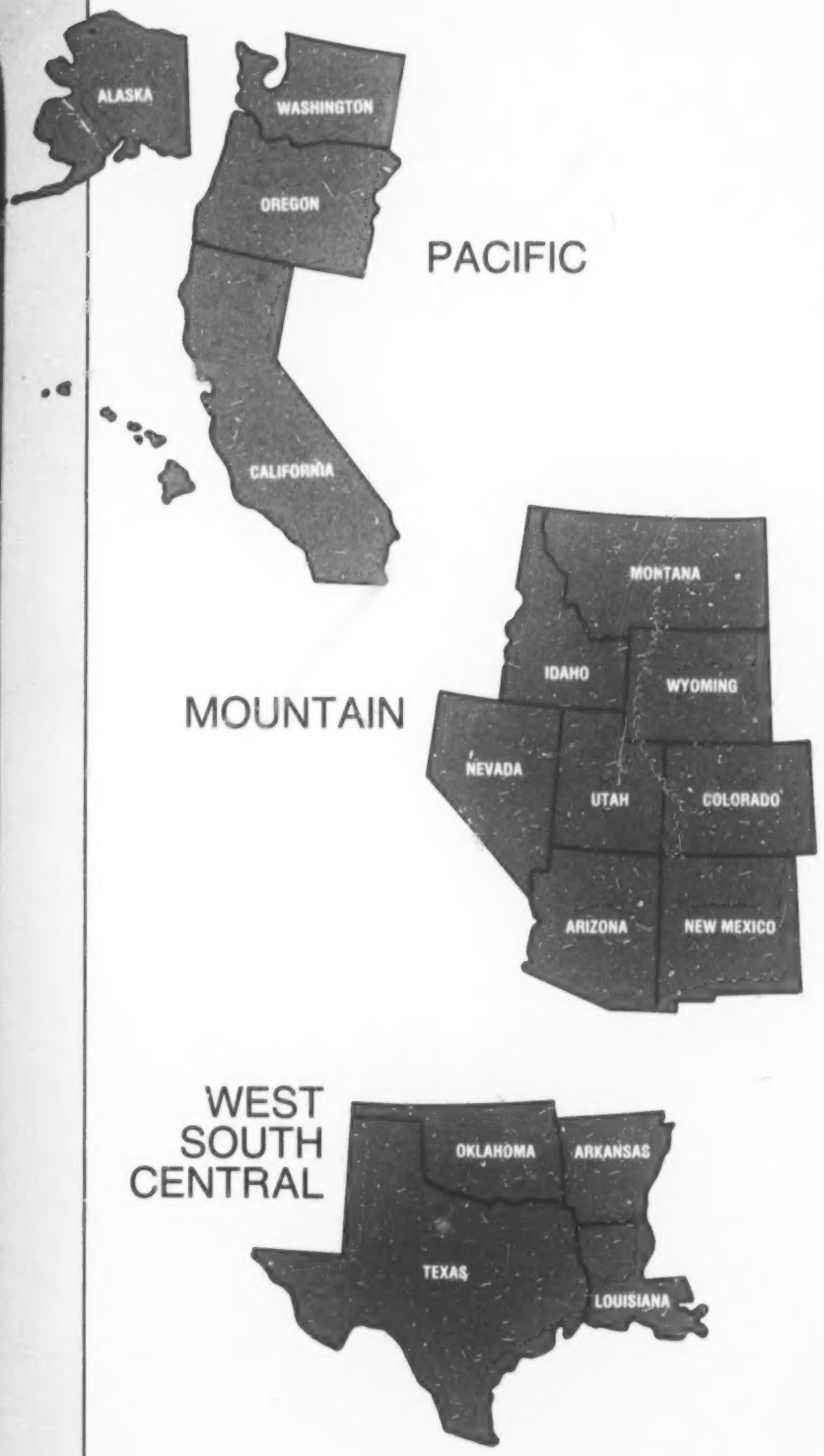
Corrugated

Corrugating plants 38
Sheet plants 40
Complete corrugators ... 39
Separate single facers 2
Letterpress printer-slotters 140
Flexo printer-slotters 50
Flexo folder-gluers 61
Folder-gluers 73
Infold gluers 5
Tapers & folder-tapers 130
Stitchers & folder-stitchers 90
Flatbed, platen diecutters 92
Rotary diecutters 50
Wax impregnators 8
Curtain coaters 17
Laminators 30
Unitizers, palletizers, strappers, bundlers ... 166
Computers 34

Folding Carton

Folding carton plants ... 28
Cutters & creasers 83
Letterpress printers 13
Offset (litho) printing presses 31
Offset: up to 3 color 5
Offset: over 3 color 12
Offset: up to 60 inches 15
Offset: over 60 inches 1
Flexo presses 16
Gravure presses 5
Gluers 86
Waxers 6
Waxing attachments 3
Laminators 1
Sheet cutters (guillotine) 12
Sheeters (web fed) 15
Slitter-rewinders 5
Case sealers 5
Computers 5

continued on page 42



WEST SOUTH CENTRAL

Corrugated

Corrugating plants 51
Sheet plants 46
Complete corrugators ... 52
Separate single facers 9
Letterpress printer-slotters 153
Flexo printer-slotters 69
Flexo folder-gluers 88
Folder-gluers 55
Infold gluers 13
Tapers & folder-tapers 140
Stitchers & folder-stitchers 107
Flatbed, platen diecutters 86
Rotary diecutters 75
Wax impregnators 26
Curtain coaters 37
Laminators 40
Unitizers, palletizers, strappers, bundlers ... 256
Computers 54

Folding Carton

Folding carton plants ... 28
Cutters & creasers 98
Letterpress printers 21
Offset (litho) printing presses 28
Offset: up to 3 color 7
Offset: over 3 color 15
Offset: up to 60 inches 16
Offset: over 60 inches 2
Flexo presses 18
Gravure presses 5
Gluers 82
Waxers 8
Waxing attachments 5
Laminators 1
Sheet cutters (guillotine) 11
Sheeters (web fed) 12
Slitter-rewinders 3
Case sealers 14
Computers 4

continued on page 44

MOUNTAIN

Corrugated

Corrugating plants	11
Sheet plants	18
Complete corrugators	11
Separate single facers	0
Letterpress printer-slotters	33
Flexo printer-slotters	17
Flexo folder-gluers	26
Folder-gluers	21
Infold gluers	3
Tapers & folder-tapers	35
Stitchers & folder-stitchers	29
Flatbed, platen diecutters	33
Rotary diecutters	13
Wax impregnators	0
Curtain coaters	7
Laminators	15
Unitizers, palletizers, strappers, bundlers	73
Computers	14

Folding Carton

Folding carton plants	8
Cutters & creasers	55
Letterpress printers	8
Offset (litho) printing presses	25
Offset: up to 3 color	16
Offset: over 3 color	4
Offset: up to 60 inches	17
Offset: over 60 inches	0
Flexo presses	2
Gravure presses	0
Gluers	28
Waxers	2
Waxing attachments	0
Laminators	2
Sheet cutters (guillotine)	15
Sheeters (web fed)	7
Slitter-rewinders	2
Case sealers	2
Computers	15

PACIFIC

Corrugated

Corrugating plants	66
Sheet plants	69
Complete corrugators	79
Separate single facers	11
Letterpress printer-slotters	178
Flexo printer-slotters	78
Flexo folder-gluers	165
Folder-gluers	74
Infold gluers	4
Tapers & folder-tapers	163
Stitchers & folder-stitchers	137
Flatbed, platen diecutters	219
Rotary diecutters	84
Wax impregnators	49
Curtain coaters	20
Laminators	51
Unitizers, palletizers, strappers, bundlers	421
Computers	78

Folding Carton

Folding carton plants	55
Cutters & creasers	229
Letterpress printers	50
Offset (litho) printing presses	91
Offset: up to 3 color	44
Offset: over 3 color	40
Offset: up to 60 inches	51
Offset: over 60 inches	14
Flexo presses	33
Gravure presses	10
Gluers	213
Waxers	35
Waxing attachments	13
Laminators	16
Sheet cutters (guillotine)	59
Sheeters (web fed)	33
Slitter-rewinders	10
Case sealers	49
Computers	29

CANADA

Corrugated

Corrugating plants	53
Sheet plants	13
Complete corrugators	61
Separate single facers	5
Letterpress printer-slotters	119
Flexo printer-slotters	44
Flexo folder-gluers	106
Folder-gluers	48
Infold gluers	12
Tapers & folder-tapers	126
Stitchers & folder-stitchers	93
Flatbed, platen diecutters	69
Rotary diecutters	52
Wax impregnators	43
Curtain coaters	21
Laminators	16
Unitizers, palletizers, strappers, bundlers	206
Computers	22

Folding Carton

Folding carton plants	88
Cutters & creasers	388
Letterpress printers	130
Offset (litho) printing presses	147
Offset: up to 3 color	73
Offset: over 3 color	61
Offset: up to 60 inches	92
Offset: over 60 inches	13
Flexo presses	22
Gravure presses	15
Gluers	226
Waxers	39
Waxing attachments	21
Laminators	10
Sheet cutters (guillotine)	71
Sheeters (web fed)	13
Slitter-rewinders	18
Case sealers	20
Computers	32

European boxboards face market fight

In the U.K. and all of Europe, folding carton merchants will stay competitive only through scrupulous attention to market attrition, social trends, and customer demands.

by Rowena Mills, Chief Executive, Rowena Mills Associates, B. Sc. (Econ.), F. Inst. Pkg., London

The following is a slightly edited version of a speech presented to the European Carton Makers Association's (ECMA) 1984 Congress in Vienna.

In the U.K., the folding carton has held its ground much better than have the other paper-based packaging materials, and better than most other packaging materials as a whole.

In terms of value of production of the major packaging sectors, the percentage attributed to cartons amounted to 12% in 1982 compared with only 11% in 1979.

In absolute terms, however, production fell away, and thus compared unfavorably with the carton industries of, for example, West Germany, France and the U.S.

In particular, the U.K. carton industry was adversely affected by imports. Net imports rose from −£7.0 million in 1979 to +£34.3 million in 1983. (In the rest of Europe as a whole, imports proved a smaller problem.)

Thus, U.K. consumption of cartons over the period suffered by no means the same magnitude of decline as did production; indeed, taking the value of the imports of unfilled cartons along with U.K. production of folding cartons, in those two years the value of consumption rose by nearly 20%. However, with prices rising by about a third over the period, the volume of consumption of cartons filled in the U.K. probably fell back by over 10%. Adding the consumption of imported goods packaged in cartons, however, the actual consumption of cartons both filled and unfilled in the U.K. over the period will have shown a much more favorable figure.

Rowena Mills

The pattern of consumption of folding cartons of the traditional type showed a shift in trend, with the percentage of total consumption absorbed by the food, drink and tobacco industry rising from 55.3% of the total in 1979 to 64% in 1982. A continuation of this trend is likely.

New technology

More important, in this period, new ideas and new technology were emerging. In this era of recession were born the seeds of new development in the folding carton industry, which will undoubtedly prove to be its salvation in the future. In particular, the developments in liquid packaging and bag-in-the-box are of major importance.

First, let us consider the future of the packaging industry as a whole, and then consider the potential for the folding carton within that field.

In the past, the packaging industry realized superior performances as a whole. But will it continue to do so in the future?

A whole range of factors enabled that industry to achieve this rapid rate of growth—factors, however, that are unlikely to have a parallel effect over the coming decade. In addition, there is an increasing number of factors likely to inhibit, rather than encourage, an above-average rate of expansion: most notably the growing recognition of social responsibility and the increasing move towards supporting the environmentalists' lobby through legislation.

Population growth was a very important factor in enabling the packaging industry to achieve rapid expansion, particularly in the '50s and '60s. The rate of increase has now declined in the U.K., however, and in the future will not parallel those past years.

Over that period, too, the number of married women working rose annually—in the U.K. from one third of all married women in 1960 to nearer two thirds by the end of the '70s.

This increase had a more than proportional effect upon the demand for packaging, as the working wife tends to spend more on

continued on page 49

convenience foods than does the average housewife.

Since the onset of the recession, however, working women have been hit by the downturn in the demand for labor; and, with rising unemployment, married women have suffered a greater degree of job loss. Not only is this evident in the unemployment returns, but it is known that a large number have simply disappeared from the working scene without registering as unemployed.

Less spending

Foremost among factors encouraging a high rate of growth in the demand for packaging was the steady upward movement in real incomes up to the mid-1970s.

However, the outlook for much of Europe for the next decade is of a slower growth in incomes than in the period before the oil crisis.

More important, perhaps, the general pattern of consumer expenditure has tended to change over the past half-decade.

As a society's standard of living rises, the proportion of real disposable income spent on foods tends to fall. This has even proved true at a time, as in the period 1975-1980, when the real cost of food was actually falling. Since the food industries absorb between two thirds and three quarters of the total market for packaging materials, this factor is significant in predicting the rate of growth of the packaging industry. (Nevertheless, the rate of decline in spending on food is seen as slowing up over the rest of the '80s.)

The number of unemployed is at a record high throughout the world, and in Europe is likely to remain so for some time to come. This factor will certainly rub off on demand for packaging; unemployed quickly become highly discerning in terms of comparable costs of everyday necessities. They undoubtedly lean towards products with the minimum of packaging.

Not only will the level of unemployment remain high and total population relatively static, but within that population structure the number of people of retirement age will constitute an annually increasing proportion, with a consequent effect upon disposable incomes and hence upon the demand for packaging.

Many other factors and developments in the postwar years have encouraged, indeed in some cases actually brought about, the growth of the packaging industry. Of these, self-service retailing has probably been the most significant.

Self-service and supermarket outlets increased rapidly in the 1950s and 1960s, but the rate of growth has tended to slow as the system has approached maturity, and the potential for further growth is now very limited.

Changes, however, will occur, for example, in the development of hypermarkets, which will probably alter the nature of demand for packaging.

> In the U.K. generally, the folding carton has held its ground much better than have the other paper-based packaging materials, and better than most other packaging materials as a whole.

Most of the factors influencing the rapid growth in demand for packaging, both in the 1970s and earlier, are thus expected to lose their impetus, either to some degree or entirely, in the 1980s. This may well apply to a large number of other factors, for example the trend towards increased home storage, freezer ownership, increased standards of hygiene, and car ownership.

Shorter work week

One factor, however, likely to have a continuing advantageous effect upon the demand for packaged goods is the predicted reduction in the length of the working week, accompanied by an increase in leisure activities and thus a greater demand for packaged foods and beverages—for conveniences, for take-home and for outings.

Over the past few years, the potential for packaging products previously sold loose has steadily diminished. However, certain products might still constitute an extended market for packaging: horticulture, whole carcasses, peeled or shredded fresh fruits and vegetables (both imported and homegrown), bakery goods, hardware and ironmongery, etc.

Finally, reference has already been made to the possible restraints upon packaging industry growth posed by two factors: growing awareness of the need for social responsibility, and increased pressure for anti-packaging legislation (the latter reflected mainly in a lobby opposing returnable beverage containers).

The future, therefore, for the packaging industry will, I believe, be one of slow growth, with the rate of increase in production no longer exceeding that of manufacturing generally, as it did in the halcyon days before the oil crisis. The modest upturn of 1984 seems likely to be succeeded by further limited expansion in 1985 (providing, of course, that there is no further oil crisis, comparable with that of 1973-74 and 1978-79). It is quite possible, however, that 1986-87 will see either a flattening out of the upward curve, or a moderate decline; but an upward trend might be resumed towards the end of the decade.

This, I believe, will be the character and structure of the packaging industry:

Market attrition

Undoubtedly, the older traditional materials will continue to lose their market share. Many of these will be pulp-based materials, in particular paper for packaging and wrapping, paper sacks and bags, regenerated cellulose film, rigid paperboard boxes and solid fibreboard cases.

Demand for jute sacks and wooden containers will continue to fall, and the glass container is likely

continued on page 52

For more information on Harper/Love Adhesives Corporation, Circle No. 126 on Reader Inquiry Card →

U. K. CONSUMER EXPENDITURE ON FOOD AS PERCENT OF TOTAL EXPENDITURE

1960	28.4%
1965	25.4%
1970	20.4%
1975	19.1%
1980	17.2%
1981	16.3%
1982	15.4%
1983	15.0%

Source: Central Statistics Office

to experience a year-on-year decline. Metal cans and steel drums are also seen as gradually losing their market position as the trend to flexibles and semi-flexibles continues.

Mainly benefitting from this trend will be laminates of all types, plastic and other films, aluminum foil, and, I believe, folding cartons.

The degrees to which European consumption of cartons will increase over the next five years is, however, extremely difficult to predict—possibly by some 2 to 4% per annum up to 1986, at which date there is likely to be a pause in the upward curve. By 1987-88 the upward trend is likely to be resumed.

In the packaging industry as a whole we shall see:

- even further reduction in capacities,
- more vertical and horizontal integration,
- increased use of systems and in-plant production,
- changing formulations of the package,
- changing formulations of the product itself,
- innovation of new materials and shapes,
- better packages
- and increased search for economy.

The search for economy will be particularly important. It will be reflected not only in cutting costs, but also in switching from one package to another. This will be achieved by:

- **Reduced material costs per unit.** This reduced material usage will include thinner gauges, reduced wall thicknesses, reduced overlap, better design, and reduced waste. Other factors will be larger unit sizes, reduced overwrap, increased standardization, and use of more economic materials.
- **Reduced processing costs.** This will include increased processing, filling, labeling and packaging speeds; increased automation; substitution of rectangular for round containers; and reduced energy costs.
- **Reduced distribution costs.** This changing character and structure will be very important to the carton manufacturer and will constitute for him a potential denied to many other sectors of the packaging industry.

To take full advantage of this valuable potential, the carton manufacturer will have to achieve:

- maximum market intelligence,
- effective and aggressive marketing,
- maximum cost effectiveness,
- willingness to innovate and be flexible
- and constant technical development.

The right package

Above all, he has to ensure that he is getting the right package in the right place at the right time and at the right price to the right people by using the right strategy. Trite but true!

He should, I believe, be looking at the following areas in his efforts to create new business:

- those in which the package type for any particular product groups seems likely to change, probably to his advantage;
- those where the product itself is changing, and thus has different packaging requirements;
- those where there is likely to be a search by the packager for a "different" or "luxury" image;
- and the whole growing area of multipaks.

Most important, by increasing his competitiveness, the U.K. carton manufacturer in particular can attempt to claw back that huge proportion of business lost to imports since 1979, and moreover, with the European carton manufacturer, exploit the potential through increased exports, particularly to Third World developing countries.

Let's take first those areas in which the package type is likely to

change. This will cover both foods and non-foods, liquids, powders and solids, and will be mainly reflected in a change from rigid containers to flexibles and semi-flexibles. Materials used increasingly will be laminates, aluminum foil, co-extrusions of all types, metalized film and paper, and plastic film, as well as folding cartons.

They will be used for many non-foods, for example medical and pharmaceutical goods and toiletries, photographic goods, chemicals and agricultural products, and household products.

They will also be used for a wide range of foods, including powdered beverages, pet foods, frozen foods, cooked foods, semi-cooked foods, instant sauces, and convenience foods.

The packages will take the form of pouches, made up of a wide variety of material combinations, and will be either retortable or non-retortable, many of them with outer cartons. Semi-cooked foods, too, will be increasingly packed in ovenable board and will be able to take full advantage of the very rapid increase predicted in the use of microwave ovens. In the U.K., for example, the use of microwaves is expected to rise from 7.5% of households to 20% in five years.

Aluminum foil manufacturers have striven hard with their technology to be able to compete in this field, but to date it still seems unlikely that they will succeed. The rapidly growing takeaway market also constitutes a valuable potential for folding cartons.

Liquid, bag-in-box

Very important is the potential for liquid packaging. We have seen, and will see further, a rapid expansion of the use of the Combliblock, Perga, Elopak, and Tetra for milk, wine, fruit juice, fruit drinks, sauces, and even viscous liquids such as custard.

Indeed, in Germany it is forecast that by 1990 the wine market will have increased by one third, entirely as a result of using cartons.

In the U.K., with 20% of all liquid milk sales now being sold in supermarkets, the folding carton has benefitted considerably, and a forecast that this figure will double in the next two or three years indicates the magnitude of the potential of that market.

> One factor likely to have a continuing advantageous effect upon the demand for packaged goods is the predicted reduction in the length of the working week, accompanied by an increase in leisure activities and thus a greater demand for packaged foods and beverages.

"Bag-in-the-box" is being used increasingly for wine, and packagers are looking to repeat the success in other markets with fruit juice, milk, carbonated beverages, soft ice cream, vegetable and mineral oils, and even industrial goods such as battery acids, photographic and pharmaceutical products, agrochemicals, and a range of powders as well as liquids.

There are difficulties, however, in entering these markets.

Take liquid packaging. It is extremely specialized and requires specialist knowledge, not only of the carton but of the very essential systems backup. The existing manufacturers have this knowledge and are highly focused in terms of the package and the market. They have dedicated printing and cutting and creasing equipment and they do not use standard materials.

What about the areas where the product form will change? These will be mainly in the food and drink markets. The move will be from liquid and solid to powder, granule and freeze-dried. We have already seen this trend in powdered soups, dried vegetables, instant potatoes, freeze-dried milk, dried food for pets and many nonfoods. This list is legion, and the trend will continue.

There is also the trend towards more concentrated food presentation, which implies different package requirements to the advantage of the folding carton manufacturer.

I spoke of the increasing influence of supermarkets. Their continued growth and search for profit will result in more and more "own label" goods. They will seek to cut their costs, and this can be, and is, often achieved by the use of a carton in place of a rigid container; however, margins will be small.

To the supermarket, volume spells profit. Thus we are likely to see more and more products presented in multipaks, more preprinted sleeves, more hi-cones, more shrink wrapping and carton packages of all types, with the expansion, perhaps, of the cartonboard "baskets" used for multipaks, which, with handles, encourage the return of either containers for re-use or recycling.

Moreover, the bulk of products sold in multipaks are in the beverage field, demand for which is growing more rapidly than that for most other consumer sectors.

Luxury image

Then there is the search on the part of the packager to establish a "different" or "luxury" image. This can result in the increased usage of overwrap, or cartoning, such as the relatively new presentation of "Gold Blend" coffee in the U.K.

Finally, where has so much of the business been lost in recent years? In so many cases, to imports. By 1982, 84,000 tons of plastic film, 18,600 tons of aluminum foil, £37.8 million in cartons, and 684 million glass containers were among the different types of packaging flooding into the U.K.

How to achieve increased business in all these potential markets? Certainly it is not by increasing capacity and adding to what is already an overcapacity situation in respect to virtually all traditional areas of carton manufacture.

The aim must be to vastly improve existing capacity, changing your own resources to meet market

continued on page 56

needs, and this is where your investment must be. This is where your market intelligence comes in! Make sure you secure customers in those fields likely to achieve the most rapid rate of growth in the use of carton packaging.

You will have to think both for yourselves and for your customers.

You will have to assess where there is a potential market for the folding carton, and, once you are convinced, you will have to go out and convince your packager.

The food and beverage industries in most parts of Europe are highly competitive and, in the case of foods, in a position of overcapacity.

Thus, the manufacturers are searching constantly for packaging that will yield cost savings. These savings are greatest in the movement from rigid to semi-rigid and flexible containers.

Those manufacturers should be, and many are, searching for innovative products to improve their profitability in a highly competitive world. Demonstrate to them that the carton is the optimum package for such new products, in terms of price and presentation.

Targets for innovation

This, however, implies the need for a radical re-thinking of your carton operation. Your financial strategy must target:

You will have to assess where there is a potential market for the folding carton, and, once you are convinced, you will have to go out and convince your packager.

- Lower manning levels (in Sweden 160 people can produce 180,000 tons of cartonboard; in the U.K. we need 600!).
- Longer runs.
- Fewer restrictive practices by unions which allow, for example, a "roving crew" to help increase makeready times when and where necessary.
- More modern machinery.
- Lower lead times.
- Much better service.
- High quality product.
- Higher quality printing.

Manufacturers of traditional materials won't give up these markets without a struggle! In the U.K., for example, the Glass Manufacturers' Federation spent £300,000 in 1984 on promoting glass containers to attempt to wrest back markets lost to competitive containers, including liquid packaging and bag-in-the-box.

The manufacturers of other materials will also try to take advantage of the new potential offered by the changing character and structure of the packaging industry.

Unless you can become more competitive, with a highly informed market thrust, the very real potential for the European carton manufacturer in the packaging scene of the second half of the 1980s will fail to be fully realized. □

ASC
THE
PALLET-MASTER
For injury and damage-free pallet handling
WANT TO INCREASE PRODUCTION?
We specialize in feeding and handling material. Our complete line of prefeeders and unit load formers will speed up both ends of your finishing equipment giving you maximum production while lowering production costs.
If you wish to learn more about these and other equipment we manufacture for the corrugated industry, contact:
ASC Machine Tools, Inc.
N. 900 Fancher Rd., P.O. Box 11619
Spokane, WA 99211-1619
(509) 534-6600 TELEX 326403
THE
LOAD FORMER
To assist in the stacking of corrugated bundles from high-speed flexo equipment
THE
FEEDMASTER
Designed to give you full production on today's and tomorrow's die cutters and flexo's.
Circle No. 104 on Reader Inquiry Card

C4390-3

paperboard packaging

FEBRUARY 1985 / $2.00

PREPRINT POWERHOUSE

Europe or USA?

***
STATISTICAL REFERENCE
4420 SUITLAND RD
WASHINGTON DC 20001
0000 0000 00000
0015960 10 01
0000 0000 00000
01

paperboard packaging

February 1985, Volume 70, No. 2

Cover illustration by Bob Novak

8 COMMENT
Exactly what do you mean? *Mark Arzoumanian*

10 NEWS
Keck distributor goes on "marketing drive"/Preprint marketers go to school/Minneapolis cartonmaker begins building new plant

14 PERSONAL VIEW
How *could* we feed them? *Fred Sharring*

16 INDUSTRY STATISTICS
The packaging industry in numbers, trends, charts, and individual market commentaries

18 WHO IS REALLY AHEAD IN THE PREPRINT WORLD?
That all depends on what is meant by "ahead." For sheer numbers, it's Europe right now. But ask about quality and the real arguments begin. *Mark Arzoumanian*

20 PREPRINT GOES FULL STEAM AT BOWATER
The combination of a Linerflex press and highly skilled employees give this company's Darlington plant great flexibility and market viability.

24 PREPRINT ADDS SPARKLE TO SOCAR BOX PLANT
Using a Conprinta flexo press, management at this plant in France have developed a special marketing system that focuses on individualizing the package.

28 FORUM TARGETS TECHNOLOGICAL ADVANCEMENTS
Part 2 of the Industry Forum evaluates the actual contribution which computers and other high-tech developments have made to production efficiency and profitability.

40 WHAT'S NEW ON TODAY'S CORRUGATOR?
Chicago TAPPI continued a tradition of acquainting its members with new products and manufacturers during its recent seminar on wet- and dry-end developments.

44 PAPERBOARD '85 OUTLOOK IS BULLISH
Strong opportunities exist for low-cost-process producers who dedicate themselves to moving upmarket in a value-added manner with structured product lines. *John Curtin*

52 MSU PREPS PUPILS FOR PACKAGING
Michigan State University's School of Packaging, which will host an international conference this fall, is engaged in a crucial funding drive to expand its facilities and program.

52b WORLD NEWS
Emballage 84 in Paris is resounding success/F&K preprint press sold to Bauernfeind/Michelman promotes coatings in Europe

56 PRODUCT OF THE MONTH
Air brush sheet and web cleaner from Web Systems Inc.

57 PEOPLE
Promotion, hiring, and other human interest news briefs

58 PRODUCTS & EQUIPMENT
Capsule descriptions and illustrations of new offerings

59 LITERATURE
Booklets, brochures, fliers and reprints to keep you abreast

60 INDUSTRY EVENTS
What's happening: exhibitions, seminars, meetings, and tours

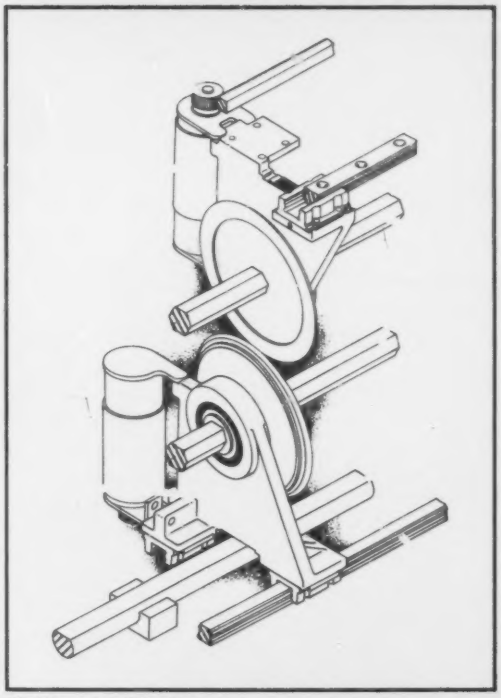
62 CLASSIFIED ADS
The industry's marketplace

67 AD INDEX
And now a word from our sponsors

68 PUBLISHER'S REPORT
Showcasing major news from suppliers

69 READER INQUIRY CARDS
Expand your options by getting the facts

20 Bowater's Bieffebi proofing press



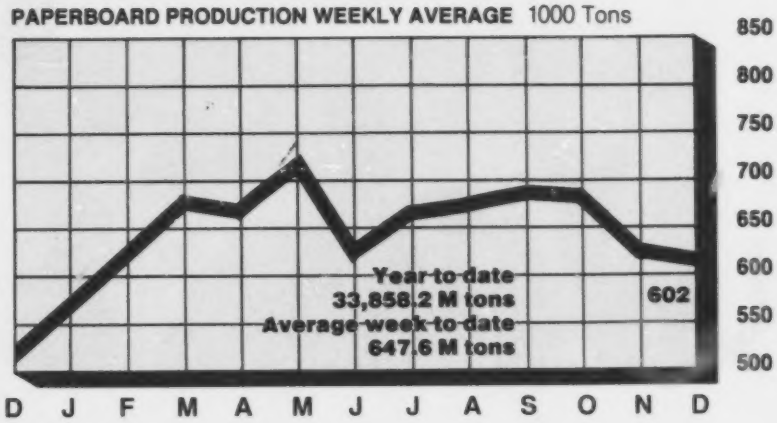
40 Marquip slitter/scorer

52 Students learn packaging at MSU

COMING

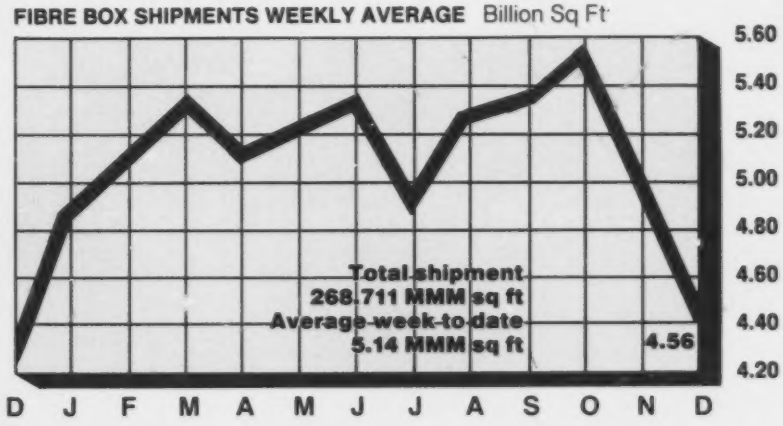
March: Mergers, acquisitions/Flexo update/Converflex/AICC
April: Boxboard report/Customer feedback/AICC Hall of Fame
May: Unions and box plants/Anilox rolls and ink/NP&PA

INDUSTRY STATISTICS



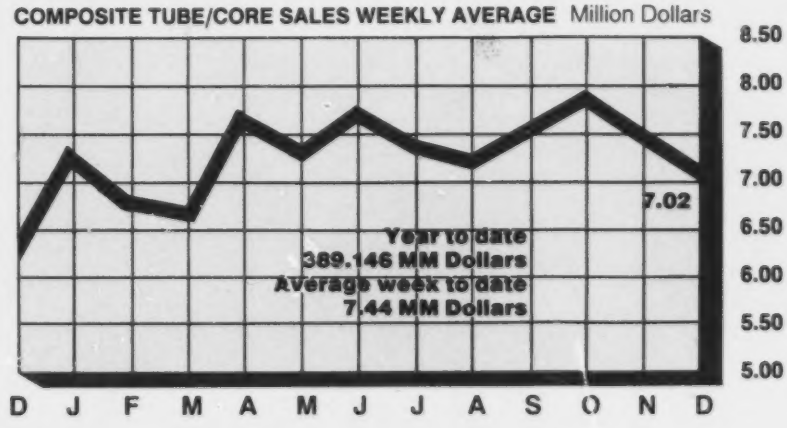
Mill operations

Initial data for '84 show about 33.86 million short tons of total board production, up 5.2% from the previous record of '83, and 16% above the tonnage in recessive '82. This persistent health, over a two-year span following a doldrum some called the worst since the Great Depression, illustrates the growing difficulty of basing today's dependable planning on historical parallels. Many experienced economists are becoming inclined to acknowledge their guesstimates could as easily go the other way, in such a business scene as this.



Board production

U.S. output in '84 included 74% of containerboards, about 6% above traditional average. The disparity is due to a strong containerboard export demand and a continued drop in boxboard packagings as alternate materials intrude. It is to be seen that boxboard volume gains during cyclical business upturns no longer fully recover losses incurred during recession. One victim of this evolution is fiber reclamation for recycling. No upturn proportionate to overall output expansions is visible in waste paper.



Rigid paper boxes

Set-up box billings ended '84 nearly 7% above '83, which was 10% ahead of '82, which was more than 6% down from '81 for the first annual drop since the 10% decline in depressed '75 from '74. At '84-end, all but one of the NP&PA's regional areas were ahead of billings in the year earlier, compared with only two at '82-end. Further, the margin of increase grew in recent months, suggesting this rigid box upturn is parallel to that of other board packagings.

Paperboard 1985 outlook is bullish

Strong opportunities exist for low-cost-process producers who dedicate themselves to moving upmarket in a value-added manner with structured product lines.

by John R. Curtin, Vice President and General Manager Bleached, Sales & Marketing, Continental Forest Industries

Some very useful information emerges from a look at the relationship of our industry to the current economic environment, the supply/demand ratios for cartonboards, underlying structural trends, and the response of the industry to these trends.

The U.S. money issue ought not to be overemphasized, but it has had a dramatic impact on the U.S. pulp and paper industry and serves as an appropriate point of departure for this discussion.

Overview

Industrial production. There is very little argument that the United States has recovered from its recessionary period, and consensus forecasts indicate that the economy is making a transition from recovery to expansion. However, the course of U.S. industrial production is important because it highlights why our mutual industries are in a relatively sluggish operating environment.

This article is based on a speech Mr. Curtin delivered to the Paperboard Packaging Council's annual membership meeting late last year.

Economic forecasts project more moderate gains, extending into 1985. The outlook for 1986 is questionable, but economists are forecasting recession primarily due to high interest rates, the U.S. deficit and the growing in balance in our trade position.

Consumption per real GNP (SEE CHART 1). Although there is less manufacturing in terms of GNP than in the past, there will always be a need for a paper industry. The growth of the communications and service sector has created a more constant demand for paper per unit of GNP than it has for paperboard. However, in each instance, the level of consumption of both paper and paperboard per billion dollars of real GNP is roughly 10% less in the case of paper in 1982 than it was in 1974 and 20% lower for paperboard than it was in the same peak year.

Of course, these numbers compute tonnage versus dollars, which ignores the extent of lightweighting that has actually been taking place in the packaging sector of the economy. Today, lighter-weight grades of paperboard are being utilized to provide the same level of performance as in the previous decade. If these same curves were plotted on a lineal foot basis, there would probably be no slippage.

In other words, the old guideline of "more from less" is in effect and conditioning the buyer to insist upon maximum performance in his material selections.

Comparative advantage. The United States pulp and paper industry has always dedicated itself to a worldwide competitive role. This

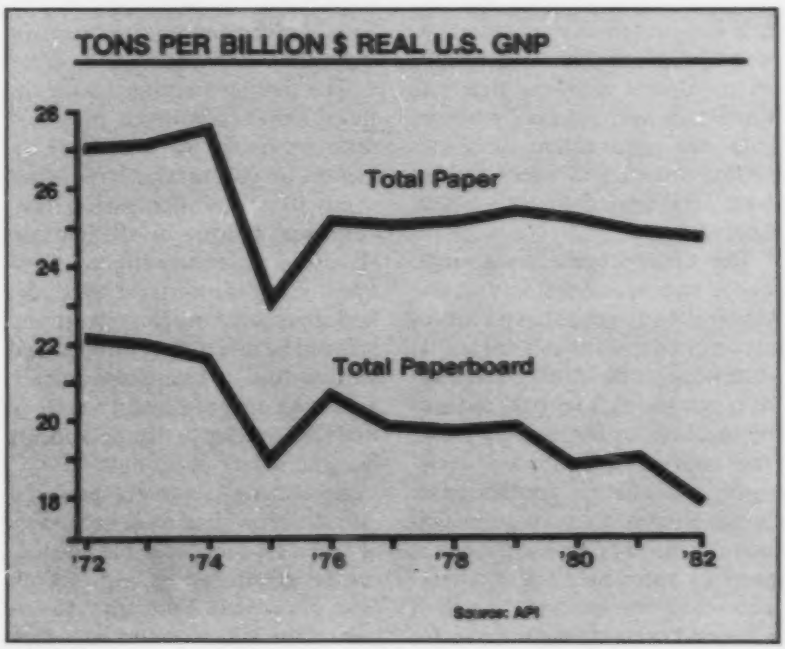


Chart 1

strategy was based upon a low infrastructure cost and a least-cost process.

The U.S. was the low-cost producer when measured in terms of softwood pulp during the '70s and early '80s. However, the strengthening of the U.S. dollar relative to Sweden and Canada negated this advantage, and today the U.S. is the high-cost producer when measured in U.S. dollars per ton.

The high exchange rate of the U.S. dollar has put American producers at a more than 25% disadvantage vis-a-vis their competitors abroad. Particularly noteworthy is the fact that Canada and Japan, the two biggest exporters to the U.S., increased their exports to this country by more than one third.

Much has already been said about the U.S. dollar, but a coincident factor that is overlooked is that there has been a major deterioration in the world trading system in recent years. Protectionism and nationalistic trade action are rising in virtually every country.

U.S. paperboard production. The U.S. paperboard industry is large, internationally competitive and is keyed closely to GNP rates of growth. During the past 18 months the industry has recovered from recession lows and expects record production in 1984. Further gains, though moderate, are predicted for 1985 and a recession forecast in 1986 should result in production being approximately at the 1984 rate.

In general terms the paperboard industry is 65% containerboard, 23% recycled and 12% bleached.

It is expected that this relative share of furnish will remain constant over the next few years.

Profits. The U.S. paper industry has been a relatively profitable industry when measured against other major U.S. industries. The industry was severely impacted by the recession of 1982/1983, and profits collapsed. Considerable balance-sheet damage occurred and was compounded by the closure of export markets due to an increasingly strong dollar.

During the past 18 months the industry has reliquified, reduced costs, raised priced and generally returned to the profit levels in effect in the 1979/1980 period. The outlook for this year continues to be encouraging.

Productivity. A major reason for the profit improvement has been the productivity gains registered by the industry and measured in tons per man hour. There is very little doubt that the U.S. lost its productive edge during the late '70s. In fact, productivity gains ranged in the 3% level between 1960 and 1973, collapsed to 1.3% from 1973 to 1980, and have now returned to 3% levels when measured between 1980 and 1984.

Capital expenditures. The period of major capital expansion in the industry occurred between 1975 and 1980. Mill-related expenditures doubled from $2 billion to $4 billion. This rate of reinvestment was fueled by a solid cash-flow position.

The reinvestment rate declined between 1981 and 1983 as profits came under pressure.

The outlook for this year is bullish. Profit improvement has resulted in a higher cash flow stream, and the industry is reinvesting in itself. Capital expenditures are forecast to reach the $5 billion level this year.

Cartonboard

(SEE CHART 2.) The production of cartonboard worldwide is directly related to the growth of nondurable products. As this chart indicates, the size of this market approximates 11 MM metric tons and has grown at approximately 1.9% during the past decade. It is a large sector of the fibre industry and has adjusted to lower rates of predictive growth as we look into the 1980-90 period. In fact, growth is projected at roughly half the rate of the prior decade.

The United States accounts for approximately half the cartonboard production followed by the EEC, Japan, Scandinavia and Canada.

Even though the industry is expected to grow to a 12 MM metric ton level by 1990, the highest rate of percentage gain will take place in the EEC and Japan. This will be primarily of a waste-based product nature and will favor home production.

Otherwise, the world is essentially growing in direct proportion to forecast GNP rates.

Folding cartonboard operating rate (SEE CHART 3). The operating rates for bleached, SUS and recycled board in the U.S. display varying degrees of volatility and cyclicality. As indicated by these curves, the demand for bleached board has been roughly in line with available capacity and therefore the operating rate has averaged approximately 92% during the past decade. Recycled board, with the exception of 1981, has always operated at approximately six to eight percentage points below the bleached-board curve. The SUS product operated at exceptionally high levels during the mid-'70s, declined dramatically in the early '80s, and has now returned to a relatively high operating-rate scenario.

Suffice it to say that bleached board has demonstrated considerably lower cyclicality than the other two grades, and all grades are forecast to operate at the high end of their structural capability during the next two years.

Cylinderboard machine shutdowns. As the '70s opened, the U.S. cartonboard industry was heavily oriented toward cylinderboard machines. Age, inefficiency and general rationalization began in earnest, and closures of both cylinderboard machines and mills have resulted in almost 2.6 million tons being taken off-line during the past 12 years.

It is forecast that an additional 95,000 tons of cylinderboard production will be closed between 1983 and 1986.

These numbers do not address the fact that improvements through new forming techniques have enabled the recycled industry to replace this tonnage through higher rates of productivity on rebuilt units.

Regardless, it is still noteworthy

continued on page 46

Curtin *continued from page 45*

that the industry has closed roughly 40 mills and shut down almost 100 machines in a 15-year period.

Bleached board machines. In addition to cylinderboard machine closures, four Fourdrinier machines and one complete mill were closed during the '70s. This action was unprecedented in the operating history of the industry and resulted in almost 200,000 tons of bleached board capacity being taken off-line.

During the '80s two machines producing SUS were also closed with a net reduction of capacity approximating 100,000 tons. In other words, the rationalization of the production base of the industry has been a continuing phenomenon during the past 15 years and has left the industry with relatively modern capacity. Further rationalization is expected, especially in the cylinder boxboard sector.

U.S. bleached board operating rate by caliper (SEE CHART 4).

The bleached board sector of the U.S. cartonboard industry has been the fastest-growing product during the past decade. However, the bleached board industry is not homogeneous and can be segmented for our purposes. As you look at this chart, you can see that the operating rate, or the function of available capacity to projected demand, for lightweight .010-.14 bleached board has been consistently higher than the rate for either mid- or heavy-caliper material.

Furthermore, it is generally accepted that at 90% of capacity, industry margins are maintained. Above 90% margins improve and below 90% deterioration sets in.

During the past recessionary periods, prices on lightweights have not deteriorated, whereas the other grade sectors, which primarily are the average for the industry, have come under pressure.

Those machines which do not have lightweight capability must market their products in more direct competition with clay-coated recycled board.

The outlook for 1985 and 1986 indicates that the operating environment for all calipers will improve.

Trends

Worthwhile brands. The capital investment of the industry is driven by legitimate worldwide market trends. Consumer brand loyalty is important and the consolidation of major food companies is a result of their continuing drive for shelf space control not only in the U.S. but worldwide.

U.S. trade. As a result of worldwide expansion and the strong U.S. dollar, *imports* of manufactured goods have *surged* during the past two years, whereas *exports* have remained relatively *flat*. The mix of goods exported from the United States has changed dramatically and has had a direct impact on the paperboard industry as well as the folding carton industry.

MSF versus ton. The folding carton industry is characterized as a slow-growth, mature industrial sec-

continued on page 48

Automatän introduces the most advanced, expertly engineered label laminating system in the industry. The Series 4000 label laminators are designed for clean, fast, trouble free operation with minimum set-up/clean-up time and low manpower requirements. Positive registration controls throughout the entire labeling operation provide accuracy at all speeds. The 4000 Series will make your labeling operation smooth and economical. The result is improved productivity.

SPEED: over 5,500/hour
BOARD: 43"x65" Maximum, 15"x14" Minimum
LABEL: 39"x51" Maximum, 8"x10" Minimum

The 4000 Series offers SPOT, PANEL, OR OVERALL LABELING on flat sheets, KD cartons from E flute through DW, including rectangular or D/C shapes. **Special Options** are available to meet your unique labeling requirements.

Call or write today and we'll show you how the 4000 Series can increase your productivity.

Automatän

P.O. Box 447, Stevens Point, Wisconsin 54481
715-341-6501 Telex: 466143 Automatan-CL

Equipment for the laminating process for packaging industry leaders

Circle No. 105 on Reader Inquiry Card

Curtin *continued from page 46*

tor. This is true when measured on a tonnage basis. However, when measured on a lineal foot or MSF basis, the industry has been growing at approximately 3 to 4% per annum, which is slightly better than GNP. It furthermore points to the lightweighting that is continuing in the industry as it switches to higher-performance cartonboards to deliver stiffness, compression, and print quality at maximum levels and minimum weight.

Press speeds. There has been a dramatic improvement in the print fidelity demanded within the folding carton industry. Capitalization with new sheet-fed and rotary presses is a response to this trend. Press speeds have increased almost fourfold between 1970 and 1982.

Needless to say, full utilization of these presses and insurance of maximum fidelity requires a careful selection of cartonboard substrate.

Market share. Cartonboard must address these trends and selection is keyed to quality, performance and material efficiency. Bleached board has increased its share between 1980 and 1984, SUS has remained unchanged, and recycled has declined. These trendlines are expected to continue during the second half of the decade.

WORLDWIDE PRODUCTION OF CARTONBOARD
1970-90

	Production, MM Metric Tons			% Avg. Annual	
	1970	1980	1990F	1970-80	1980-90
U.S.	5.3	5.9	5.9	1.0	0.7
Canada	0.3	0.3	0.4	1.4	0.6
EEC	1.5	1.7	2.1	1.0	2.2
Scandinavia	0.7	1.2	1.3	4.8	0.9
Japan	1.1	1.2	1.5	1.7	2.0
Total	9.1	11.0	12.1	1.9	0.9

Source: SRI

Chart 2

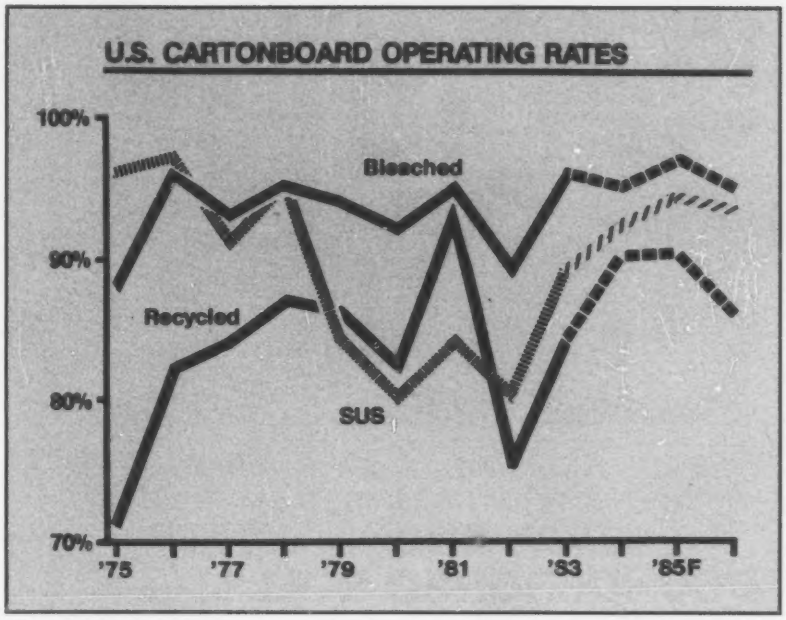


Chart 3

Response

Uniformity. The cartonboard industry has responded to these trends in a variety of ways, but in each case new capital has been required. A general qualitative upgrading has occurred.

This process can be best summarized as the drive for uniformity.

There is a range of tolerance surrounding each minimum specification. Modern technology enables the purchaser to buy the desired level of performance at close tolerance from a Fourdrinier machine; whereas a cylinderboard machine, with its inherent higher variability, will provide that level of specification at a much wider tolerance.

The difference between these two processes is worth a continuing five percentage points. In other words, the purchaser of Fourdrinier material will be receiving the minimum specification within a narrow tolerance; whereas, with a cylinder boxboard, he must build in a wider range of insurance.

Comparative advantage. U.S. cartonboard technology is dedicated to maximum performance at highest quality levels. During the past 12 months, there has been continuing discussion of Scandinavian and Finnish material making inroads into U.S. folding carton markets. These introductions have been selective and have demonstrated the product differentiation available worldwide.

The worldwide grade structure illustrates the increasing selectivity and differentiation at work within the folding carton industry. Continued improvement in brightness, printing surface and structural properties is a response to legitimate market-driven forces.

Folding carton board costs (SEE CHART 5). The economic response of the industry can best be measured in the cost of 20-point folding carton board discounted for inflation and calculated at the lowest-density-available basis.

As you can see from this chart, the cost of bleached board and clay-coated news has showed very little movement during the past eight years. The gap between the two grades widened during 1983 and to-

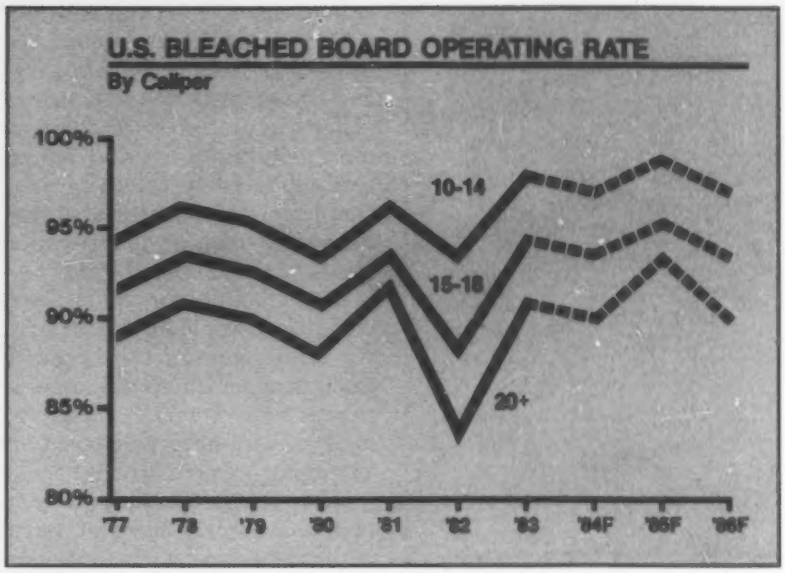


Chart 4

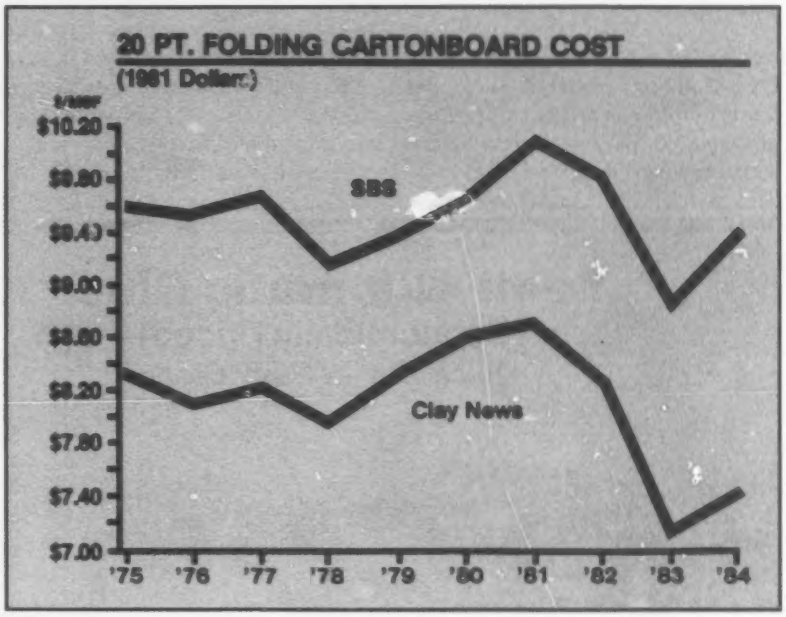


Chart 5

day is at its highest historical level.

There is very little doubt that overcapacity in the cylinder boxboard area has slowed price movement despite increasing raw material and energy costs.

Assuming that costs will push the clay news curve back towards its historical relationship with bleached board, the purchaser of folding cartonboard, providing he is utilizing lowest-density material for maximum performance, will be able to offset inflationary cost movement over time.

Not many industries today can display a price/performance curve that attests to a continuing commitment to provide high-efficiency material for its customers.

As an example, the newest process, a multi-ply TMP product, has extended this yield another notch, and today the folding carton converter is generating 12,500 cartons per TMP ton, versus 10,600 cartons per low-density SBS ton.

Outlook

(SEE CHART 6.) Looking down the road, it is important to keep the price relationship between bleached board, clay-coated news and plastic resin in perspective. During the '70s, plastics made dramatic and easy inroads into historical fibre-packaging markets. During 1980-83 plastic resins were priced at levels which would not provide satisfactory returns yet subsidized market penetration.

Competition with plastic is most apparent versus bleached board. It now appears the price competitiveness of plastic packaging versus bleached board packaging is tending to favor bleached.

Quality, economics, decorative and environmental considerations all enter into the buying decision vis-a-vis plastic and fibre calculations.

At the very least, one can say that the easy penetration of plastic into fibre markets is over, and the deregulation of natural gas pricing early this year could have an important bearing on the future price trajectory of ethylene derivatives.

Inventory/sales. A further point of consideration is the inventory-to-sales ratio for U.S. wholesale trade. The ratio has varied against its time trend during the past eight years. It reached a high point for this series in 1975 at 1.60. Today, it is at a low point at 1.40.

The data suggest that a modest correction is underway, yet the economy in 1985 should remain relatively strong due to the fact that inventory control policies have remained rigid and actionable and that no substantial build-up faces us in the pipelines.

U.S. dollar. The outlook for the U.S. dollar is critical to U.S. economy. A considerable incremental gain would come from the return of the dollar to its equilibrium trend line. If the dollar stays at its current exchange valuation, life will remain difficult, and the industry will be faced with strictly a U.S. consumption function. Conversely, should the dollar recapture some of its lost advantage, the U.S. will rapidly find

continued on page 50

Curtin *continued from page 49*

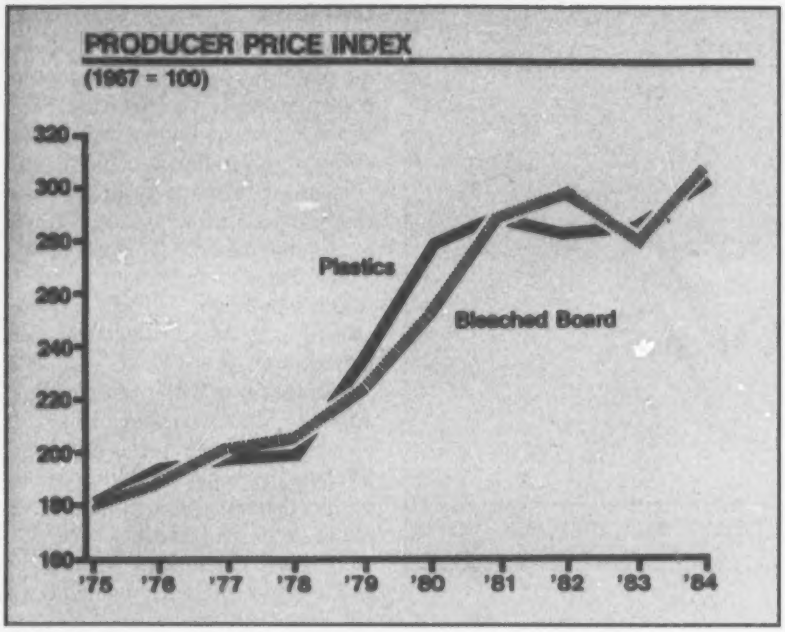


Chart 6

export markets for both its folding carton board and folding cartons.

Dollar value. There is very little doubt that the folding carton industry is trending upmarket. The dollar value of folding cartons shipped has grown at 6.8% per year, whereas units measured in tons have increased only 1.3% per year. The progression upmarket is a function of a demand for better graphics, coatings and barrier properties and stricter performance tolerances. In addition, more sophisticated distribution systems and inventory controls are forcing a very real distinction between the system-oriented folding carton plant and the job shop.

The demand for systems increases, and the ability of the folding carton industry to respond to the system demand is critical to its growth and profitability, hence the need for cartonboard designed for value enhancement.

SBS capacity/demand. The bleached board operating rate is one of the better indicators of the overall health of the industry, and the outlook for this grade is important to everyone. Consensus forecasts indicate that the industry will post relatively low levels of growth during the next few years, but low capacity additions will create a favorable operating environment. □

Circle No. 112 on Reader Inquiry Card

C4370-3

paperboard packaging

MARCH 1985 / $2.00

185 00159808 10 91
0000 0000
000000
STATISTICAL REFERENCE
4520 E WEST HWY ST
WASHINGTON
DC 20014
***

paperboard packaging

March 1985, Volume 70, No. 3 ABP BPA

8 COMMENT
Learn from the locals. *Mark Arzoumanian*

10 NEWS
API foresees 1.6% annual paper capacity rise/MSU packaging school gets $2000 donation from CCA/Bobst to market new gravure printing system/Union Camp starts Georgia preprint operation.

18 PERSONAL VIEW
Good gas from garbage. *Fred Sharring*

18 INDUSTRY STATISTICS
The packaging industry in numbers and charts, market by market.

20 PPC JAPAN CARTON TOUR IS BIG SUCCESS
One of the most interesting things observed by U.S. carton makers was the symbiotic relationship between labor and management in Japanese carton plants.

24 OPERATING TECHNIQUES FOR FLEXOS
It's not that you have to "work harder" to improve the performance of your plant's flexo folder/gluer. Everyone just has to "work smarter."
Loren Ashwood

32 IN SEARCH OF THE SUPER FLEXO FOLDER/GLUER
When shopping for this profit center of its own, what do you need to look for in feeding, printing, scoring/slotting, folding, and gluing sections?
Robert Gitlin

36 MERGERS PACE INDUSTRY EVOLUTION
Firms in packaging, now more than ever devoted to that one field, are jettisoning dead weight and scrambling to consolidate capacities in order to profitably survive. *Fred Sharring*

44 GERMAN PLANT UPDATES 'GATOR IN RECORD TIME
The decision to go with Simon's package gives the plant's management a completely new perspective on the meaning of productivity.
Mark Arzoumanian

52b WORLD NEWS
Export success brings more jobs to Kirby's/Emballage 84 is resounding success/Papyrus bids for Nymolla.

54 CONVERFLEX GEARS UP TO SET RECORD
Milan, a well-known center of European chic, will be the showcase this month for the world's most fashionable board converting machinery.

60 STRAPPING SYSTEM SAVES A BUNDLE
One common problem in box plants is lack of strapping and bundling efficiency. A good system can cut costs and freshen worker enthusiasm.

62 PRODUCT OF THE MONTH
Storage racks for cutting dies, from Henderson Manufacturing Co.

64 PEOPLE
Promotions, hirings, and other human interest news briefs.

68 PRODUCTS & EQUIPMENT
Capsule descriptions and illustrations of the latest offerings.

72 LITERATURE
Booklets, brochures, fliers, and reprints to keep you abreast.

76 INDUSTRY EVENTS
What's happening: exhibitions, seminars, meetings, tours.

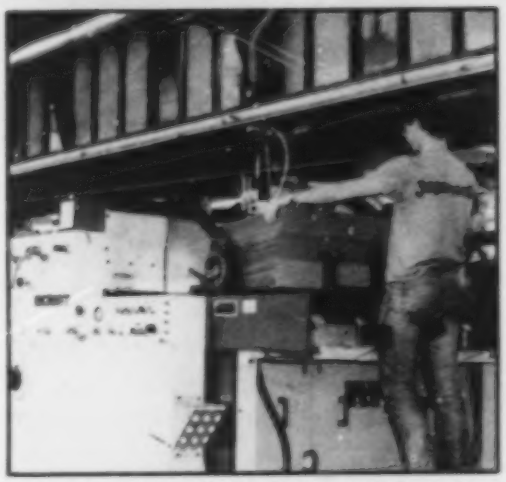
78 CLASSIFIED ADS
The industry's marketplace.

83 AD INDEX
And now a word from our sponsors.

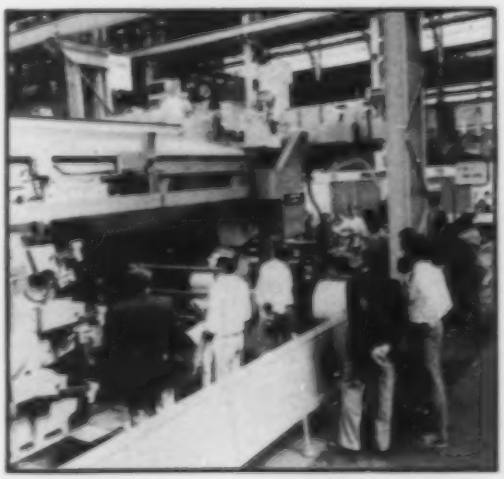
84 PUBLISHER'S REPORT
Showcasing major news from suppliers.

85 READER INQUIRY CARDS
Expand your options by getting the facts.

20 Japanese workers viewed by PPC tour group



44 Employees learn new technology at German Plant



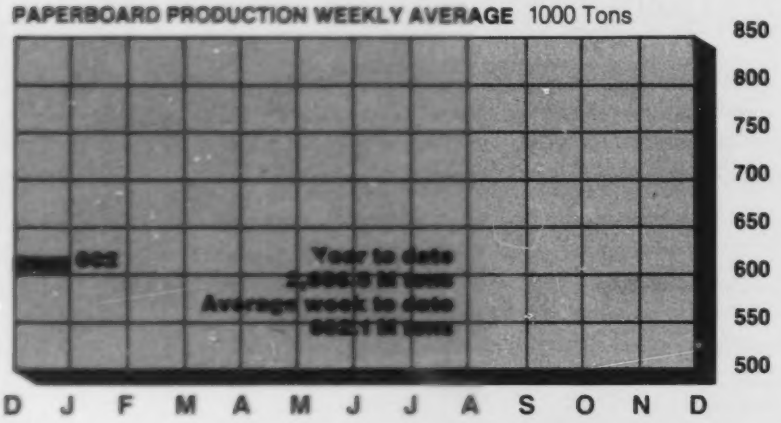
54 Converflex in Milan will outdo '81 exhibit

COMING

April: Boxboard report/Customer feedback/AICC Hall of Fame
May: Unions and box plants/Anilox rolls and ink/NP&PA
June: Census 85/High-strength boxes/FEFCO/ECMA

INDUSTRY STATISTICS

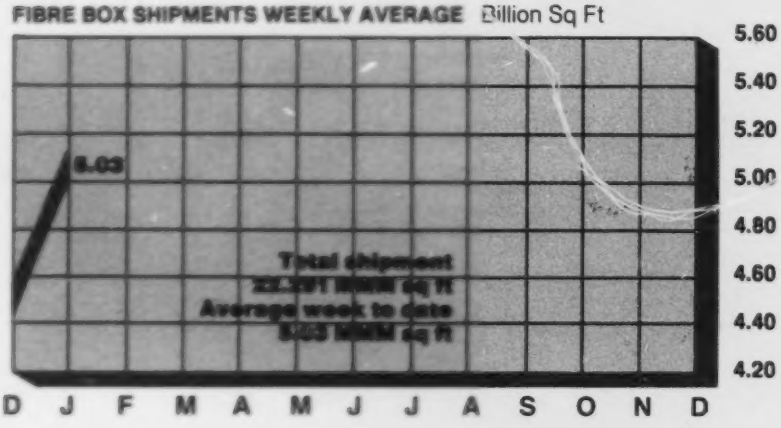
PAPERBOARD PRODUCTION WEEKLY AVERAGE 1000 Tons



Mill operations

The first month of 1985 continued to reflect the output easing of later 1984 months, after earlier vigor. A volume of 2666.5 M short tons was down 2% from last year's first month, which had been 12% up from '83, which was 7.9% up from recessive 1982. Rarely have there been such wide swings in annual volume over so short a time. But business stability led to reduction in the usual holiday mill shutdowns. This, and continued high fibre-box demand, resulted in the second-highest January volume on record.

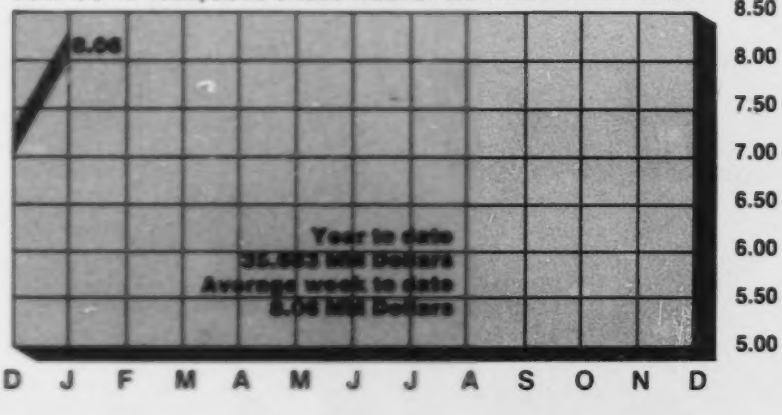
FIBRE BOX SHIPMENTS WEEKLY AVERAGE Billion Sq Ft



Board production

January's output included 1985.6 M tons of containerboards, down 1% from January '84, plus 680.9 M of boxboards, down 4.5%, as projected on a historic basis from the American Paper Institute's "production by furnish" tonnages. Bleached boards fell 3.6%, recycled grades 4.3%. The trend continues toward minimizing carton costs. The price differential of bleached over clay-coated boards remains more than one third, an all-time high; this margin can hardly be ignored in a competitive boxmaking business.

COMPOSITE TUBE/CORE SALES WEEKLY AVERAGE Million Dollars



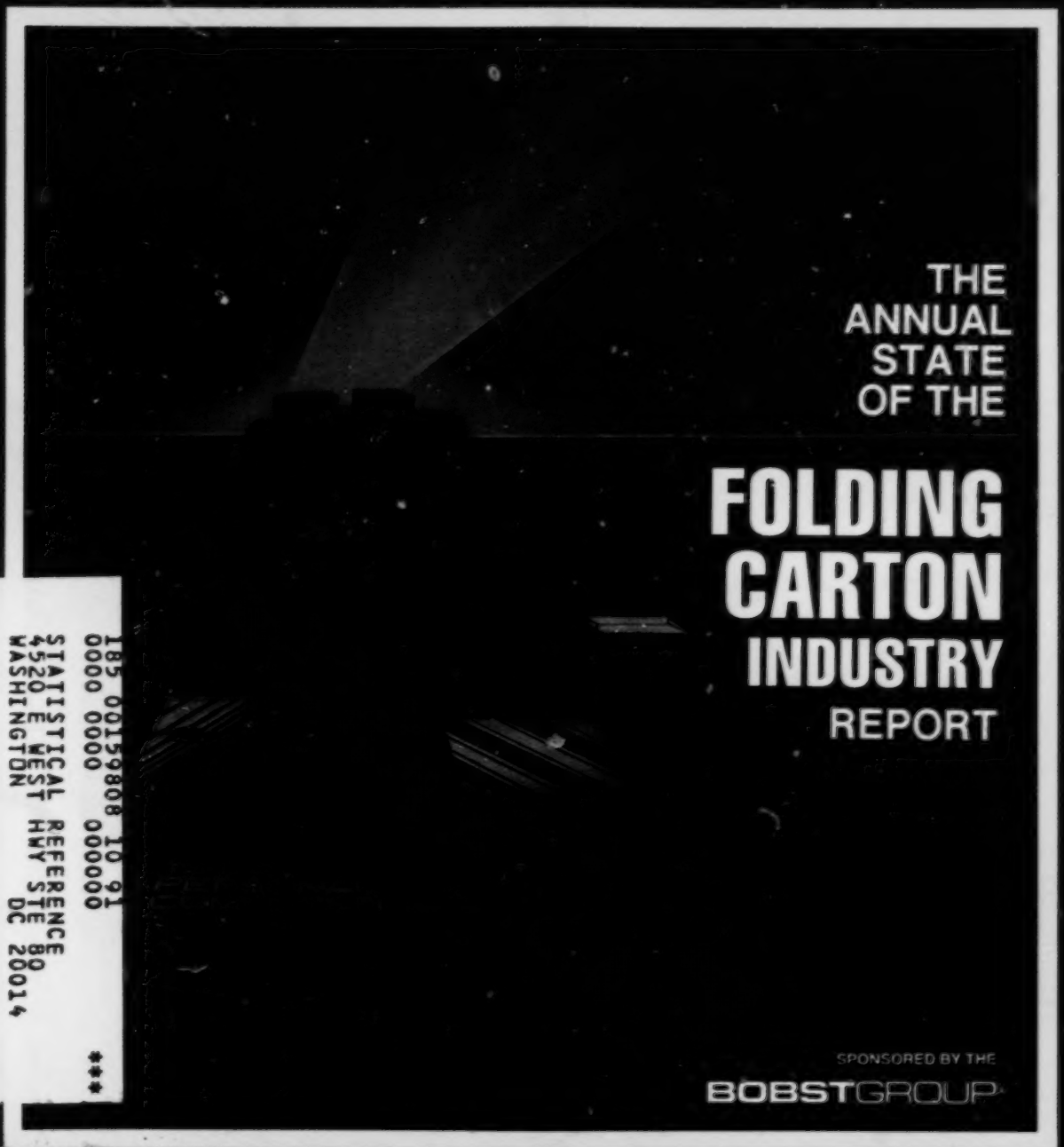
Rigid boxes

Rigid box billings, up 9% from early '84, reflect an increase in unit price rather than volume. Rigid box tonnage, unreported by the National Paperbox & Packaging Association, in general parallels that entering into folding carton conversion, which has had a minimal expansion. That, again, is attributed to competition from alternative packagings in high-volume applications, and to other materials made part of paper boxes.

C4390-3

paperboard packaging

APRIL 1985 / $2.00



THE ANNUAL STATE OF THE FOLDING CARTON INDUSTRY REPORT

SPONSORED BY THE BOBST GROUP

STATISTICAL REFERENCE
4520 EAST WEST HWY STE 800
WASHINGTON DC 20014
185 00159808 10 91
0000 0000 000000
***

paperboard packaging

April 1985, Volume 70, No. 4 ABP VBPA

8 COMMENT
Not so fast. *Mark Arzoumanian*

10 NEWS
AICC head addresses Senate committee/0-1 rebuilds paper machine/Inland opens new plant/Manville beefs carton operations/PPC boxboard report

18 PERSONAL VIEW
The costly business traveler. *Fred Sharring*

18 INDUSTRY STATISTICS
The packaging industry in numbers and charts, market by market

20 TECHNOLOGY TRIUMPHS OVER TREPIDATION
By taking advantage of the latest Peters boxmaking machinery, a German corrugating plant has achieved a blossoming of worker productivity and cohesiveness. *Mark Arzoumanian*

24 COMPUTER PACKAGE EARNS TOP PPC HONOR
Champion International's one-color UV-coated foil board package won over judges at the Paperboard Packaging Council's prestigious annual event.

30 SCRAP REMOVAL ALSO REMOVES PROFIT DRAIN
A Minneapolis sheet plant has solved its waste problem and saved on labor with equipment that sucks up, shreds and bales floor scrap.

55 ARVANIGIAN ENTERS AICC HALL OF FAME
The founder of Arvco Containers has succeeded by employing a keen sense of purchasing economics, market viability and operations specialization.

64 RESPONDING TO CUSTOMER COMPLAINTS
Feedback from end users is part of a vital system of checks and balances, though on the whole packaging's customers seem fairly well satisfied.

68 PRINT 85 TAKES OVER McCORMICK
This month's Chicago extravaganza will be a marketplace for manufacturers of graphic arts production machinery from all over the world.

75 BUNDLER SPEEDS PRODUCTION OF KD CONTAINERS
A corrugated container plant is using the latest bundling/strapping equipment, capable of 30,000 cartons per hour at 25-per-stack delivery.

78 BOOKMAKER BACKS HAPPILY INTO BOXES
A manufacturer of rigid box production machinery helped a Baltimore book manufacturer discover a profitable niche in computer program slipcases.

78b WORLD NEWS
Export success brings more jobs to Kirby's/Papyrus bids for Nymolla/Thames Case wins Starpack award.

80 ITALIANS SET UP U.S. DEPOTS FOR PARTS, TRAINING
Technical training on Italian machinery in Italian plants has given U.S. agents a firmer grip on addressing the needs of their customers.

82 PRODUCT OF THE MONTH
Hotmelt Curtain Coater from Koating Machinery Co. Inc.

83 PEOPLE
Promotions, hirings and other human interest news briefs

85 PRODUCTS & EQUIPMENT
Capsule descriptions and illustrations of the latest offerings

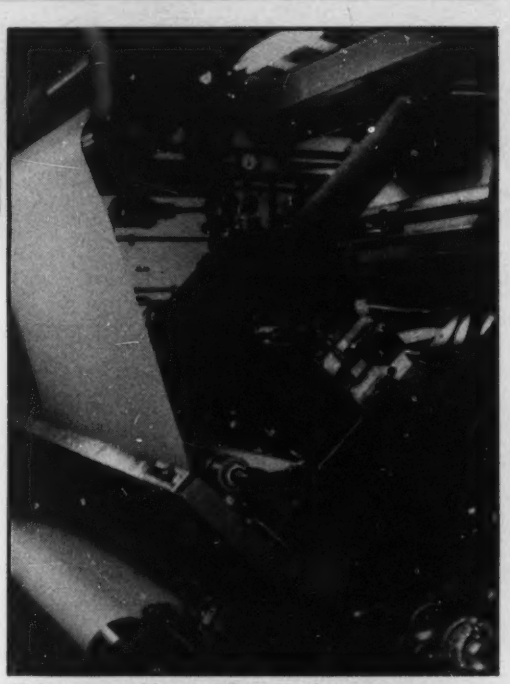
93 LITERATURE
Booklets, brochures, fliers, and reprints to keep you abreast

95 INDUSTRY EVENTS
What's happening: exhibitions, seminars, meetings and tours

97 CLASSIFIED ADS
The industry's marketplace

101 AD INDEX
And now a word from our sponsors.

102 PUBLISHER'S REPORT
Showcasing major news from suppliers



20 Peters machinery at German plant

30 Feeding scrap to vacuum floor sweep

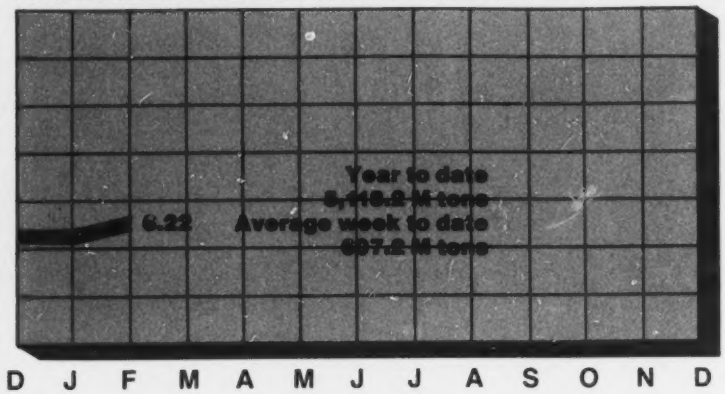
55 AICC Hall of Famer George Arvanigian

COMING

May: Unions and box plants/Anilox rolls and ink/NP&PA
June: Census 85/High-strength boxes/FEFCO/ECMA
July: Industry Forum/Offloading bottlenecks

INDUSTRY STATISTICS 1985

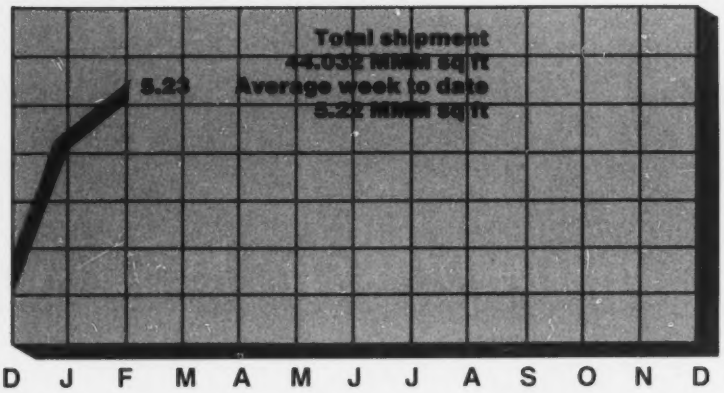
PAPERBOARD PRODUCTION WEEKLY AVERAGE 1000 Tons



Mill operations

Through two months of 1985, paperboard production was 3.2% down from record-setting, resurgent '84. The average-week tonnage in February was 3.8% below same-month '84, which had been up 9.6% from '83, which was 4.6% down from '82, which had been up 1.3% from '81, which was down 5.6% from '80—illustrating the wide gyrations of demand and supply under the economic swerves of recent years. Present portents for 1985 are that it will not match massive '84 tonnage but neither will it be recessive.

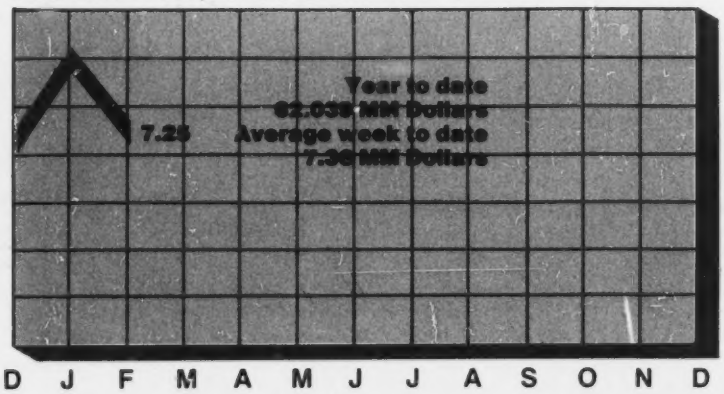
FIBRE BOX SHIPMENTS WEEKLY AVERAGE Billion Sq Ft



Board production

In February, a projected 2484.9 M tons of board included 1791.0 M of containerboards and 693.9 M of boxboards, down respectively 9.9% and 0.2% from 1984 volume. The long-term trend for some packagings is seen, unfortunately, in current tonnages relative to those of 10 years ago. Containerboard output is up 30% from same-time 1975, while boxboards are less than 2% higher. This is in the face of an 11% U.S. population rise that decade, to about 238.5 million entering '85. Plastics have come a long way.

COMPOSITE TUBE/CORE SALES WEEKLY AVERAGE Million Dollars



Rigid boxes

Set-up box billings (total sales) in early '85 are 9% up from '83, 58% from '75, report major producers to the NP&PA. This suggests a distinct decline in recent tonnage; in the parallel case of folding cartons, ton-price has gone up an average of around 9% annually. That again would seem to substantiate the slow decline, now decades-long, in boxboard-packaging output—with geography having its usual strong influence on local business.

Sales of folding cartons on the rise

A survey of the folding carton industry answers some questions about the concerns and priorities of plant management people.

Things appear to be looking up in the folding carton industry: 73% of respondents to the 1984 Paperboard Market Profile reported a sales volume increase last year over 1983. Furthermore, 74% predicted a continued rise in 1985.

The survey, sponsored by Bobst Group Inc., was conducted by Infometrics, Duluth, Minn., the statistical research arm of HBJ Inc. Infometrics sent detailed questionnaires to executives at folding carton plants nationwide.

Of the respondents, 27% were integrated, 73% independent.

The number of square feet of manufacturing space reported most often was 100,000.

Almost half of respondents (48%) felt alternate packaging materials and systems would have a "slight effect" on the folding carton business, not a far-reaching impact. Forty-five percent felt alternate packagings would squeeze or even replace folding cartons in some product categories, but not all.

Respondents said the future for aseptic packaging in North America was most likely in beverages/wine, followed by individual servings of prepared dry or liquid foods, pharmaceuticals, and medicines. If, during the next six to 12 months, suitable aseptic equipment were made available and feasible to them, 60% of respondents nevertheless would be "not at all likely" to purchase it. Only 7% said they'd be very likely to get involved with aseptic in the next five years; 14%, somewhat likely; 36%, not very; 43%, not at all.

The survey asked respondents how important were variable repeat web offset procedures to customers. Fifteen percent said they were very important; 32%, somewhat important; 17%, not very important; 36%, not at all important.

Respondents said the main development they wanted to see more of in the future would be water-based coatings (gloss, gluable, able to accept hot foil stamping).

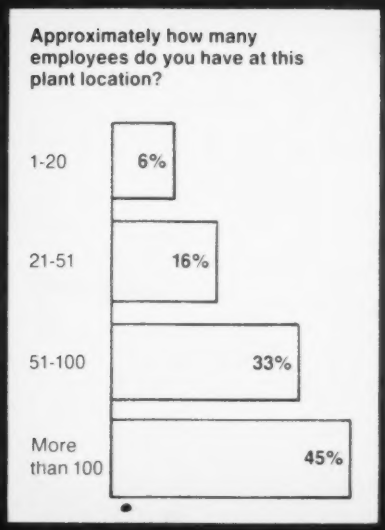
When asked to list any industry support programs, or improvements in these programs, which they wanted to see developed during the near future, respondents said: better operator training programs on equipment; flexo plates; mill coatings (barrier); and better diecutting—to name the most frequent responses.

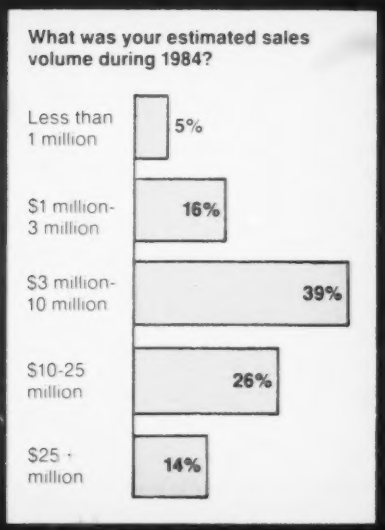
Eighty-six percent of respondents normally retained equipment more than seven years old, retrofitting as needed. Respondents were asked why they chose to maintain outdated or worn-out equipment instead of purchasing new equipment. The recurring refrain was, "Too expensive; can't justify the purchase."

Forty-six percent said they planned either to initiate or upgrade their hot foil stamping process during the next 12 months; 71% would do so for embossing; 33% for gold printing.

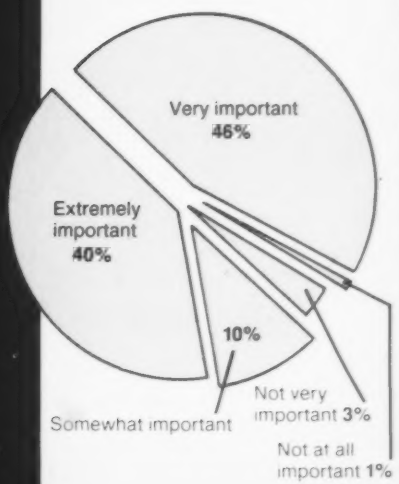
The remaining statistics are graphically illustrated in the following tables and charts. □

MARKET PROFILE

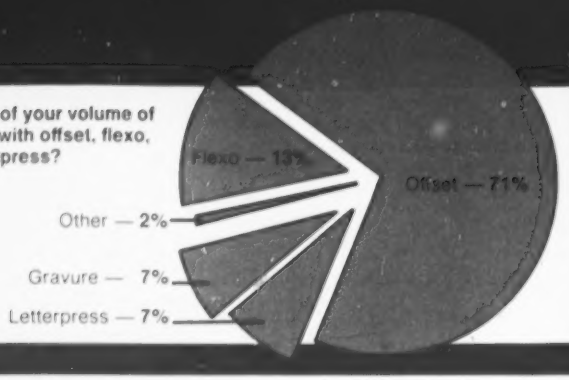




Please think about the recent developments and modifications in die cutters, folder-gluers and printing presses. These mean less time in changing job specifications by cutting set-up time. How important is speeding up the changeover process to you?



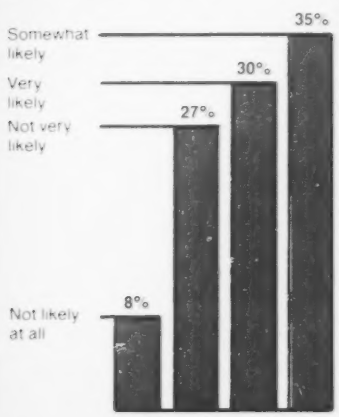
What percentage of your volume of business is done with offset, flexo, gravure and letterpress?



Please think about the importance of training in your operation. How important is training to you in the following areas:

	Very Important	Somewhat Important	Not very Important	Not at all Important
Internal sales programs	36%	40%	15%	9%
Management training programs	32%	42%	21%	5%
Manufacturer s training on equipment	52%	30%	14%	4%
Pre-installation equipment training	40%	34%	17%	9%
Diecutter operator training	60%	28%	10%	2%
Folder-gluer operator training	60%	26%	12%	2%
Printing press operator training	70%	20%	8%	2%
Computer training	31%	42%	18%	9%
Troubleshooting techniques	43%	39%	13%	5%

During the next year, how likely will you be to utilize the advances in speeding the changeover process, by considering new plant equipment geared for faster set-up?



How satisfied are you with the current training programs offered by manufacturers in connection with equipment purchased from their companies? Specifically, how satisfied are you with manufacturer training programs for the following types of equipment?

	Very Satisfied	Somewhat Satisfied	Not very Satisfied	Not at all Satisfied
Diecutters	39%	39%	19%	3%
Printing presses	34%	38%	23%	5%
Folder-gluers	23%	44%	27%	6%

On a scale of 1 to 10, 10 being extremely important, 1 being not important at all, indicate the features that are important when purchasing diecutters, printing presses, and folder-gluers.

DIECUTTERS	
Set-up	9
Cost	8
Self register	7
Self correction	6
Tension control	6

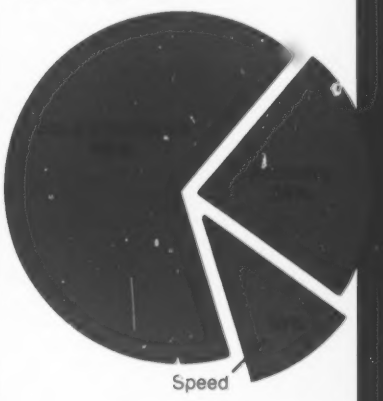
PRINTING PRESSES	
Set-up	9
Cost	8
Self register	8
Self correction	7
Tension control	6

FOLDER-GLUERS	
Set-up	9
Cost	8
Self register	7
Self correction	6
Tension contyrol	5

Please think about retort pouch packaging. In which of the following product categories do you expect losses to occur in folding carton business due to this type of packaging, during the next year?

	% Expecting losses	Estimated loss
Pharmaceutical	53%	9%
Food and beverage	93%	12%
Soaps/Detergents	45%	7%
Diapers	43%	15%
Cookies	63%	12%

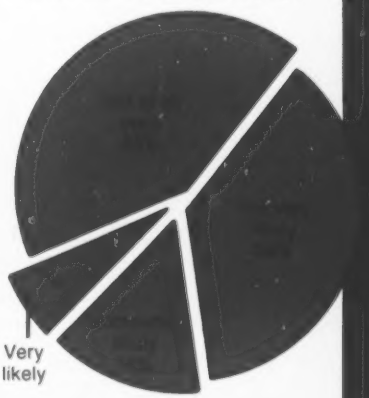
Regarding web diecutting retrofits, which is more important to you, speed or accuracy?



Please think about rigid packaging. In which of the following product categories do you expect losses to occur in folding carton business due to this type of packaging, during the next year?

	% Expecting losses	Estimated loss
Pharmaceutical	43%	4%
Food and beverage	62%	7%
Soaps/Detergents	38%	10%
Diapers	24%	10%
Cookies	48%	7%

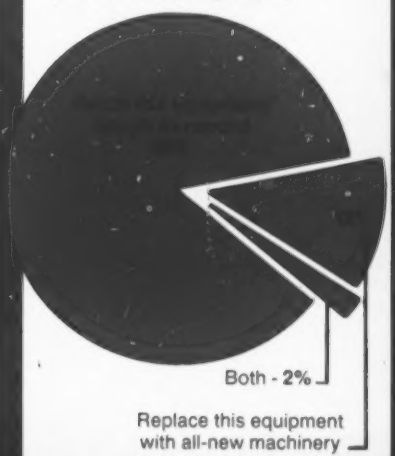
During the next five years, how likely will you be to become involved with aseptic packaging?



Please think about micro-flute packaging. In which of the following product categories do you expect losses to occur in folding carton business due to this type of packaging, during the next year?

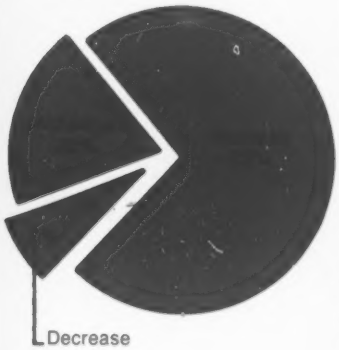
	% Expecting losses	Estimated loss
Pharmaceutical	17%	5%
Food and beverage	47%	6%
Soaps/Detergents	69%	6%
Diapers	36%	6%
Cookies	28%	5%

Regarding equipment over seven years old, do you generally

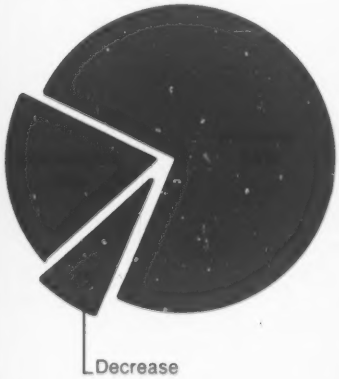


How important are variable repeat web offset procedures to customers?

Did your 1984 sales volume increase, decrease or remain unchanged from 1983?



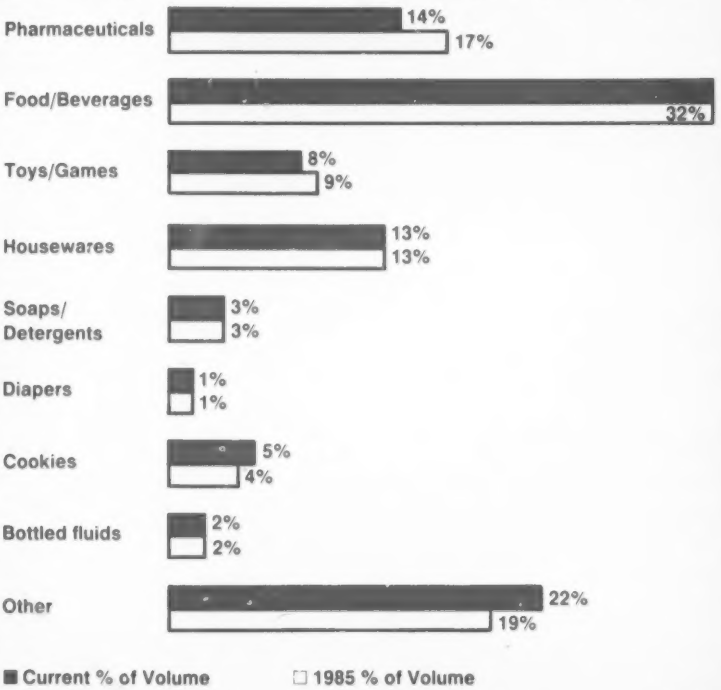
Do you expect your sales volume to increase, decrease or remain unchanged during 1985?



Probability of usage of specific printing methods according to product categories.

	Offset	Flexo	Gravure	Letterpress
Pharmaceutical	92%	3%	1%	4%
Food/Beverage	69%	17%	7%	7%
Toys/Games	90%	5%	0%	5%
Soaps/Detergents	76%	5%	16%	3%
Diapers	61%	6%	29%	4%
Cookies	80%	9%	8%	3%
Bottled fluids	78%	11%	5%	6%
Housewares	80%	8%	2%	10%
Other	70%	15%	6%	9%

What percentage of your sales volume currently comes from each of these product categories? How do you expect this to change durng the next year?



In regard to variable repeat web offset, aseptics and water-based inks, which of the following conditions apply to your particular operation?

	Have Low Interest	Currently Use	Anticipate Using During the Next Two Years
Variable repeat web offset	76	8	17
Aseptics	86	7	4
Water-based inks	41	41	18

What types of equipment are currently used in folding carton operations? If the equipment is in need of updating or repair, is it usually replaced, or retrofitted, or both?

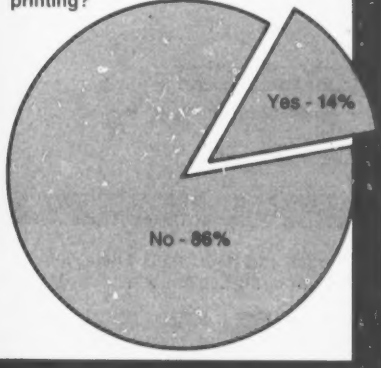
	Currently Use	Do Not Use	Replace Equipment	Retrofit Equipment	Both
Offset printing press	89%	11%	32%	23%	45%
Gravure printing press	21%	79%	9%	64%	27%
Letterpress printing press	37%	63%	21%	53%	26%
Sheet fed diecutter	94%	6%	36%	20%	44%
Web fed diecutter	41%	59%	8%	52%	40%
Multi-purpose folder-gluer	84%	16%	22%	29%	49%
Straignt-line folder-gluer	96%	4%	19%	24%	57%
Waxer	26%	74%	15%	23%	62%
Laminator	25%	75%	20%	40%	40%
Window machine	74%	26%	26%	50%	24%

What sheet and web widths are you most typically using? What widths would you like to be using in the future?

SHEET WIDTHS	NOW	FUTURE
36-40"	37%	35%
30" or less	20%	16%
41-45"	11%	18%
61-65"	10%	7%
56-60"	7%	9%
51-55"	5%	5%
31-35"	5%	1%
46-50"	5%	9%
Over 65"	-	-

WEB WIDTHS	NOW	FUTURE
36-40"	35%	23%
41-45"	19%	17%
26-30"	13%	14%
46-50"	8%	14%
21-25"	6%	-
15" or less	6%	6%
31-35"	6%	14%
Over 55"	-	-
16-20"	2%	2%
50-55"	-	10%

Are you currently utilizing gravure printing?



Reasons for not utilizing gravure printing (all that apply):

- High cost of procedure 30%
- Low customer demand 48%
- High cost of gravure cylinders 34%
- High cost of gravure machinery 36%

Concerning gravure engravings, the industry's progress has been:

- Extremely pertinent and useful to the boxmaking industry **28%**
- Somewhat important and moderately useful **40%**
- Not very useful and sparsely utilized **19%**
- Impractical for most operations **13%**

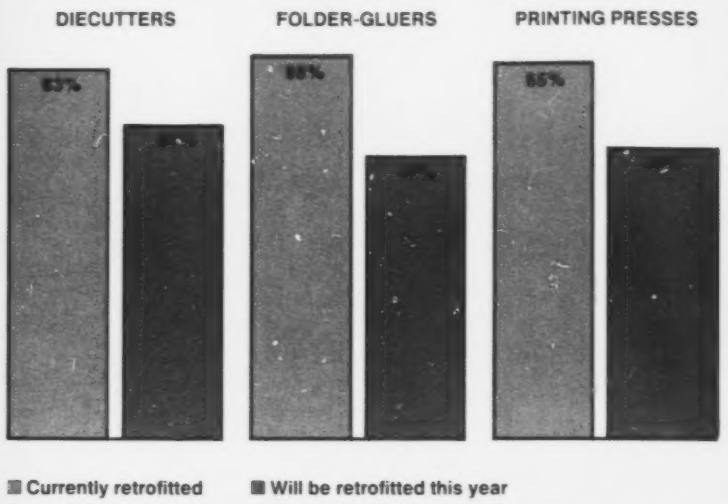
Are you planning to introduce gravure printings into your operation during the next year?

- Yes ..... —
- No 100%

In regard to gravure engravings, how satisfied are you with the following elements of this process?

	Very Satisfied	Somewhat Satisfied	Not Very Satisfied	Not At All Satisfied
Quality	11%	56%	28%	5%
Cost	—	22%	56%	22%
Delivery time from suppliers	—	33%	45%	22%

Now think about what percentage of your diecutters, folder-gluers and printing presses are retrofitted currently and what this percentage will be during 1985.



Which of these processes are you currently using?

Hot foil stamping	32%
Embossing	57%
Gold printing	30%

Which of these processes do you plan to either initiate or upgrade during the next 12 months?

Hot foil stamping	46%
Embossing	71%
Gold printing	33%

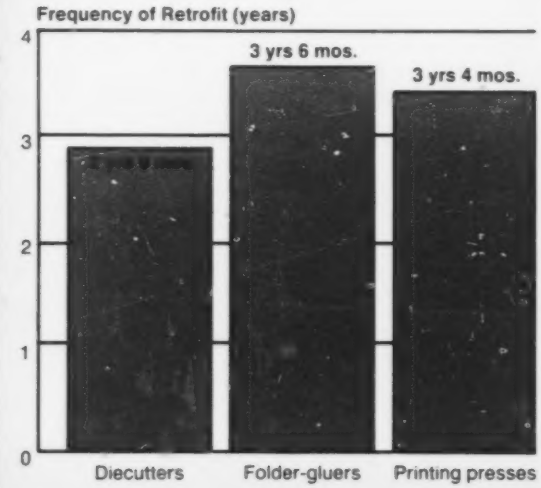
Concerning folder-gluers, how important will the following equipment features be to you as a folding carton converter in 1985?

	Very Important	Somewhat Important	Not Very Important	Not At All Important
Faster set-up	75%	24%	1%	0%
Computerized re-spec	22%	30%	36%	12%
Prevention of jam-ups	55%	35%	8%	2%
Improved feeding systems	64%	27%	7%	2%
Improved take-off systems	51%	34%	13%	2%

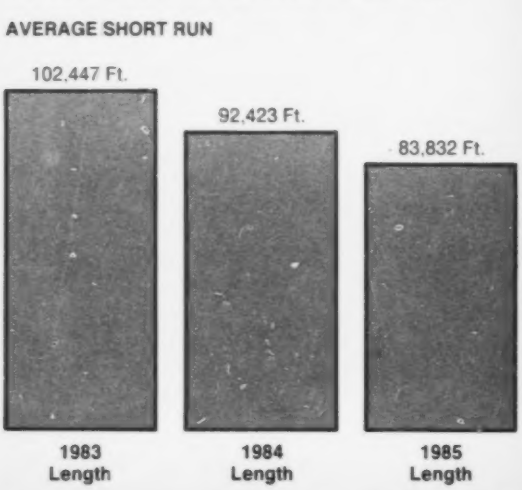
Criteria, numbered in order of importance (scale of 1 to 10, 10 being extremely important, 1 not at all important) on the minds of management figures considering purchase of machinery:

ATTRIBUTES	VALUE
Overall product quality	10
After-sales service	9
Parts availability	9
Accessibility of technical staff	9
Other	9
Price	8
Delivery time	6
Accessibility of sales staff	6

Approximately, how often do you retrofit diecutters, folder-gluers and printing presses?



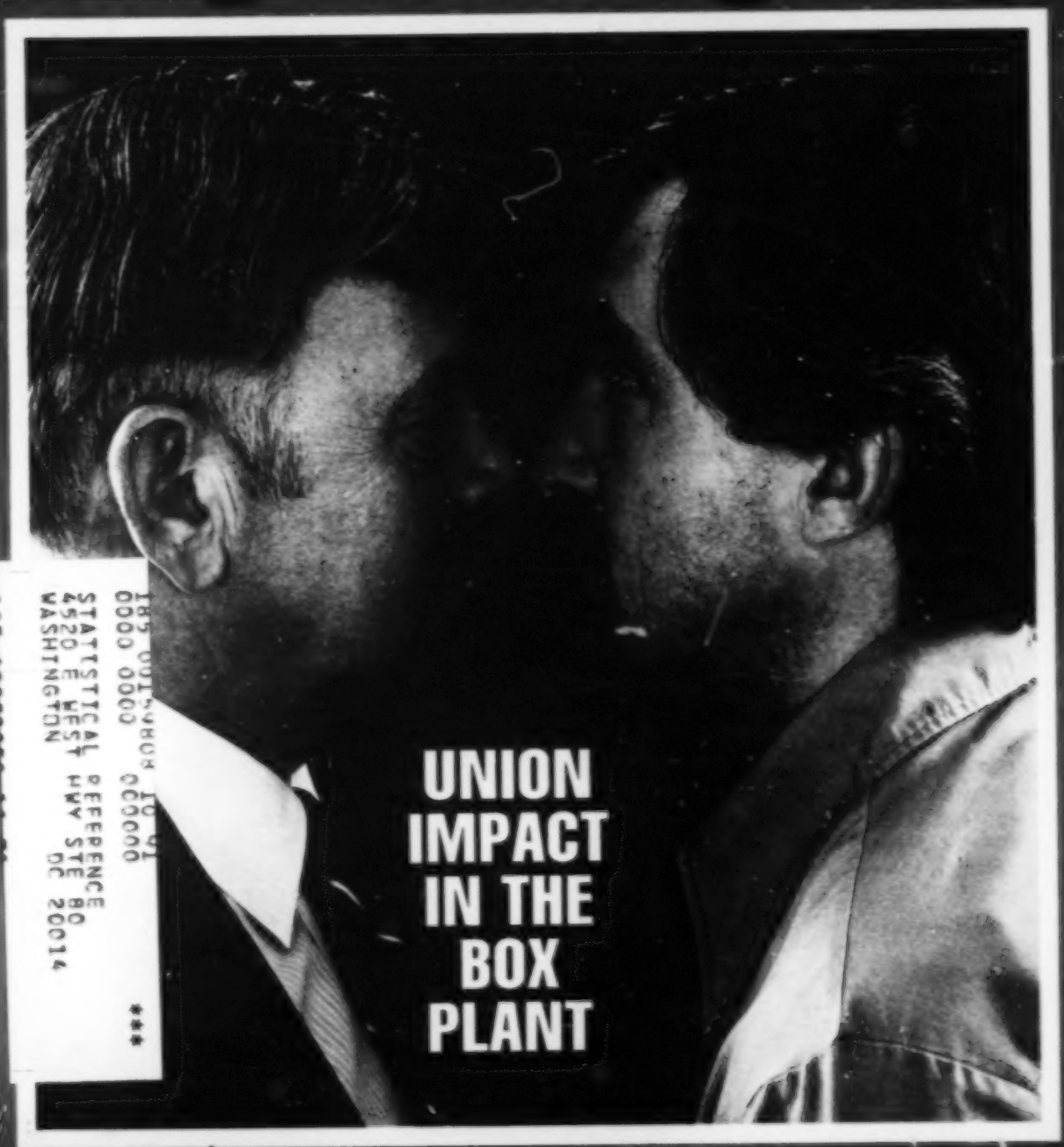
Regarding short runs, what was the average length of your short runs in 1983, 1984, and what do you expect this length to be in 1985? (Answers in linear feet.)



C4390-3

paperboard packaging

MAY 1985 / $2.00



UNION IMPACT IN THE BOX PLANT

STATISTICAL REFERENCE BO
4520 E WEST HWY STE BO
WASHINGTON DC 20014

AN BPI PUBLICATION

paperboard packaging

May 1985, Volume 70, No. 5 ABP VBPA

8 COMMENT
China changes its tune. *Mark Arzoumanian*

10 NEWS
NP&PA powwow/TAPPI group targets linerboard production problems/MSU pupil wins AICC stipend/TAPPI elections, new phone bulletins/Mason Box buys out Sweet/Rock-Tenn enters Florida

18 PERSONAL VIEW
High tech *vs.* smokestack? *Fred Sharring*

18 INDUSTRY STATISTICS
The packaging industry in numbers and charts, market by market

20 DEZEEUW SHOWS PRIDE, INNOVATION
This Dutch box plant is very aware of its reputation as a premier corrugating operation not content merely to preserve the status quo. *Mark Arzoumanian*

33 APPLYING WATER COATINGS OVER OIL INKS
Wet trapping of aqueous coatings in-line on sheetfed offset presses has come a long way. The future of this technology looks promising. *Larry Caughlin*

36 ARE WE GETTING ALONG WITH OUR WORKERS?
Do you crack the whip or pat more butts? For the most part, box plant management has a friendly relationship with its floor crews. *Robert Gitlin*

40 ANILOX ROLLS: MOVING FLEXO INKS TO PLATES
If you're printing flexo, you're using them. But do you go with chrome-plated or ceramic-coated? Metering roll or reverse-angle doctor blade? *Robert Gitlin*

46 WHY NOT A BIGGER SHARE OF THE MARKET?
The services of a professional designer may be the key to getting more folding cartons onto the shelves of warehouses and stores. *May Bender*

50 PLANT TOUR KEYS ON ITALIAN TECHNOLOGY
St. Louis Section TAPPI provided a forum for papers on pressurized single facers, and showed visitors Bennett Paper's very advanced boardmaking/converting operation.

52 TEN YEARS OF STARTLING ACCURACY
A Minneapolis carton plant uses a sturdy, accurate counting machine to satisfy customers wanting long runs but short-count cartons.

52b WORLD NEWS
Agnati finishes sale of third China corrugator/Reed Corrugated now licensee of Containair/New splicing tapes widen their horizons/Finnish mills set record

54 PRODUCT OF THE MONTH
Dertiend rotary diecutter

55 PEOPLE
Promotions, hirings and other human-interest news briefs

60 PRODUCTS & EQUIPMENT
Capsule descriptions and illustrations of the latest offerings

65 INDUSTRY EVENTS
What's happening: exhibitions, seminars, meetings and tours

67 CLASSIFIED ADS
The industry's marketplace

71 AD INDEX
And now a word from our sponsors

72 PUBLISHER'S REPORT
Norman Stone dies

73 READER INQUIRY CARDS
Expand your options by getting the facts.

20 Dutch box plant getting ahead

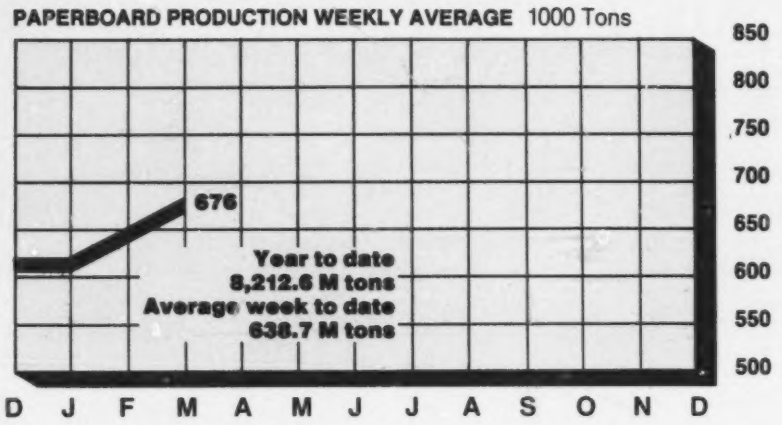
36 Labor/management relations

40 Care and cleaning of anilox rolls

COMING

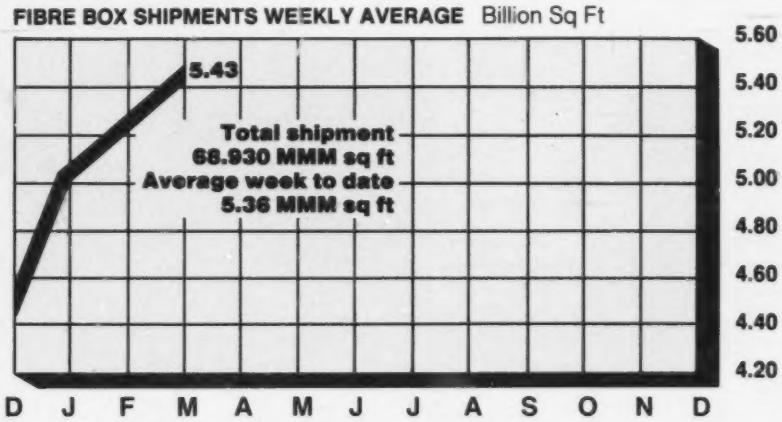
June: Census '85/High-strength boxes/FEFCO/ECMA
July: Industry Forum/Offloading dilemmas
August: Folding carton photo study/Plate mounting

INDUSTRY STATISTICS 1985



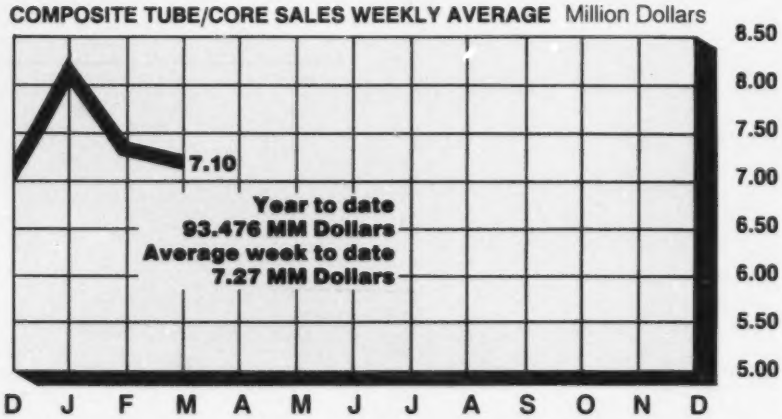
Mill operations

At first-quarter end, 1985's average weekly output was 2.7% below the same-period 1984 tonnage which had been 9.8% above '83, which was 3.5% above '82, compared with a drop of 4.7% in '82 from '81. In March, 2993.5 M tons of production was 3.7% below last year, which had been 2.4% up from '83, which was 3.5% ahead of the 1982 month. At quarter-end the containerboards comprised only 66% of total tonnage—as in earlier years—compared with the near-75% of more-recent years, due to inventory curtailments.



Board production

In March, total tonnage of board output included 2204.3 M of containerboards, down 5% from the '84 month but up 22% in the decade, plus 789.2 M tons of boxboards, down 2.8% from '83 and 15% below '75 volume. These reversals reflect a permanent evolution in solid-board packagings. Boxboard converted products are under successful attack by alternates. But our containerboards are the least costly worldwide, thus demand for them is sustained by major export volume as well as domestic use.



Rigid boxes

Through the first '85 quarter, set-up box business continued to show good response to the general upturn—4% up from '84 billings, which were 12% above '83. Geographical variations remain at an extreme, however, ranging from high double-digit improvements in the Eastern sectors to comparable drops in the Southern sectors. This is the traditional "see-saw" effect from last year, and illustrates boxboard packaging's vulnerability to economic shifts and inroads made by alternate packaging.